SMALL ESTABLISHMENT SERVICE

1979 ANNUAL REPORT

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ABOUT INPUT

THE COMPANY

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions. Continuing services are provided to users and vendors of computers, communications, and office products and services.

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1979 ANNUAL REPORT

NOVEMBER 1979

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I INTRODUCTION

I INTRODUCTION

- This report is produced by INPUT as part of the Small Establishment Service (SES). The report covers the selection and use of information processing products and services by small establishments. These products and services include:

  - Computer equipment.

  - Computer services.

  - Office equipment.

  - Communications equipment.

  - Communications services.

- Information is provided on the twelve major industry sectors. Detailed information is provided in separate reports within this volume on selected industries within each major industry sector.

- Certain industries were grouped together to provide a larger sample size for interview results.

- Both independent small establishments and branches of large corporations were analyzed and reported upon separately.

- Small establishments reported upon were in the size categories of:

  - 1-19 employees.

  - 20-99 employees.

  - 100-499 employees.

  These categories match the size categories of the U.S. Bureau of the Census, <u>County Business Patterns</u>.

- This report emphasizes the use of information processing and communications equipment and services, user needs for additional equipment and services, and user applications.

- A vendor analysis section highlights the year's accomplishments and the strategies of 20 major vendors as they pertain to small establishment.

- A major event section provides an analysis of the major events in 1979, that will affect the small establishment market.

- Inquiries and comments on the information presented in this report are invited from clients.

II EXECUTIVE SUMMARY

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A. KEY CONCLUSIONS

- Expenditures by small establishments for information processing equipment and services grew by 18% in 1978 reaching approximatley $37.0 billion. The breakdown by equipment and services is:

  - EDP equipment $ 7.3 billion
  - Computer services $ 2.2 billion
  - Communications equipment $ 4.9 billion
  - Communications services $14.8 billion
  - Office automation $ 7.8 billion

  These figures are for payments to outside vendors only, and do not include salaries or fringe benefits to EDP, communication, or office employees.

- The larger of the small establishments (50-499) employees are strong users of information automation. The are also in the process of expanding and updating their systems.

- The very small companies (1-19 employees) are automating slowly but are expected to do so at an increasing rate as more distribution channels prepare to reach them.

• New vendor participants are entering the small business marketplace almost monthly. Many of these vendors are large companies that have sold peripherals before and now are integrating systems for the smaller companies.

  - Others are fairly new to the small business market. They have sold to hobbyists and homeowners in the past.

  - Both types of companies are tending to reach the small users through distribution channels other than their own direct salesmen.

• The major companies in the computer field are announcing new systems, new application packages, and new services for small businesses.

  - Computer service companies are designing offerings in this marketplace.

    . CDC opened its first business and technology center in St. Paul, offering a variety of services including space leasing, telephone answering, programming, and data processing services.

    . Telecomputing Corporation of America and Compuserve are offering personal computer users access to large computer power and public information data bases. The services are available primarily during non-prime hours. Small businesses can make use of these services which usually require less of a financial commitment than standard services.

  - While the major computer systems manufacturers have announced new systems to serve the small business area, few of the systems prices are below $25,000. They are aimed at firms of 40 employees and up.

- The new manufacturing entrants to the small business field all have systems that start at about $12,000, and many are below that price. This may put pressure upon the major manufacturers to lower the cost.

- Examples of both groups of vendors are shown in Exhibit II-1.

• Branches of large corporations are heavier users of communications services than the independent establishments (Exhibit II-2). However, a great majority of the branches use WATS and Telex/TWX, not leased lines, to meet their communications needs.

  - Over 50% of the branches of advertising, broadcasting, insurance agents, and food manufacturing companies use WATS services.

  - Over 40% of the branches of advertising, broadcasting, and freight forwarding companies use facsimile equipment and services.

  - Only 5% of the branch respondents report being tied into the corporate complex by a leased line network.

• Communications changes in the upcoming two years will affect both branches and independent small businesses.

  - Those companies that use computer service vendors, and those branches that obtain computer services from their parent company will have a greater variety of communications options available to them. These options, when coupled with lower priced terminal equipment, will be used to entice users towards electronic data delivery and away from mail and courier service which most use today to transmit information.

• Word processing usage is independent of the organizational structure - branch or independent establishment - but very industry dependent (Exhibit II-3).

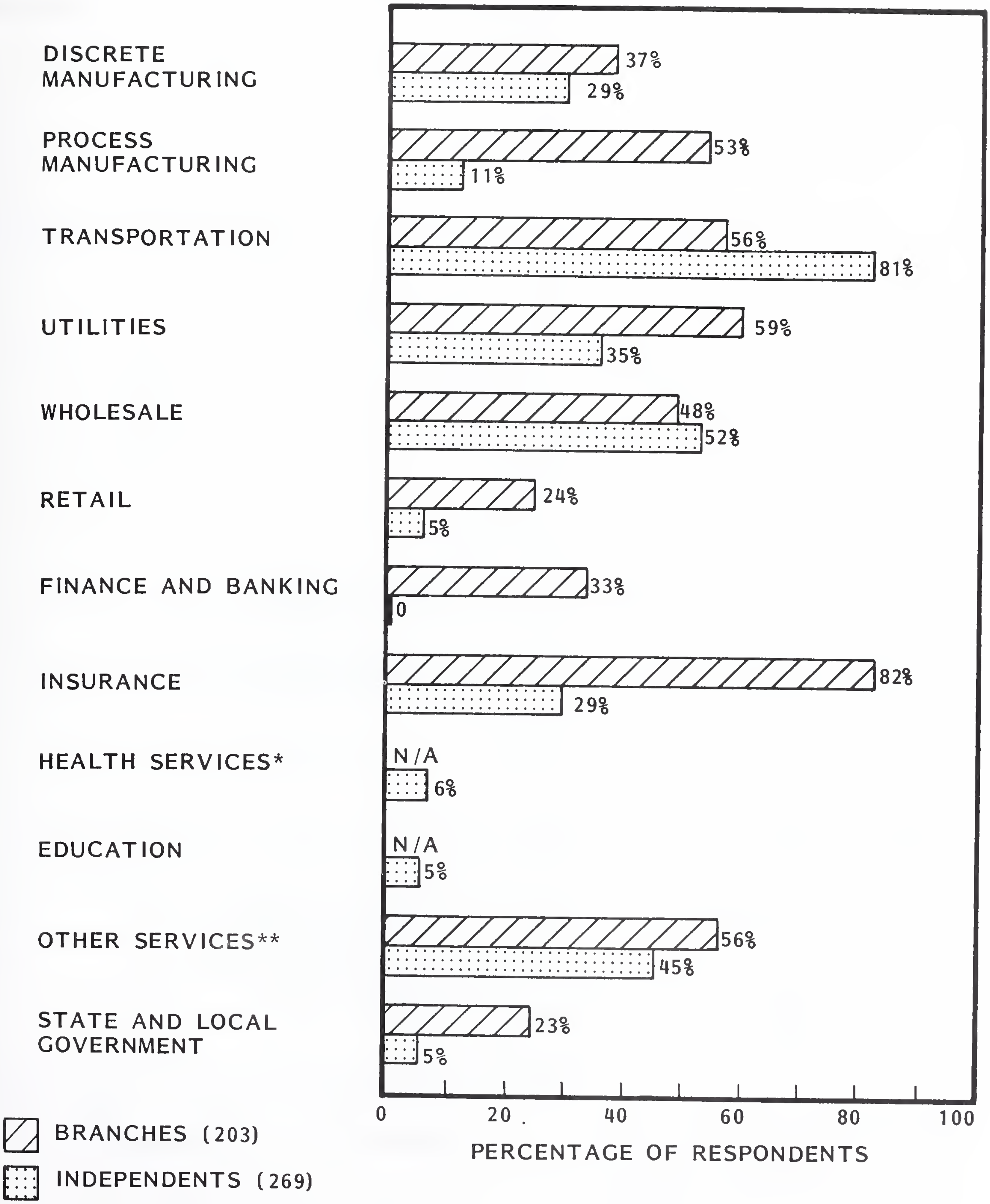
EXHIBIT II-1

BRANDS OF COMPUTERS FOUND IN SAMPLED SMALL ESTABLISHMENTS VERSUS BUSINESS SYSTEMS SOLD THROUGH RETAIL DEALERS

BRANDS FOUND IN SMALL ESTABLISHMENTS	BUSINESS SYSTEMS SOLD THROUGH RETAIL DEALERS
IBM	PERTEC
BURROUGHS	CROMEMCO
NCR	APPLE II
HONEYWELL	NORTHSTAR
UNIVAC	OHIO SCIENTIFIC
DEC	DATA GENERAL
DATAPOINT	DEC
DATA GENERAL	HONEYWELL
OLIVETTI	RADIO SHACK
ITEL	TEXAS INSTRUMENTS
PHILIPS	DYNABYTE
NIXDORF	RANDAL DATA SYSTEMS
WANG	
BASIC/FOUR	
FOUR PHASE	
OHIO SCIENTIFIC	
QUANTEL	
HEWLETT-PACKARD	
CINCINNATI MILACRON	
NORTHRUP	
GENERAL AUTOMATION	
MARKETRON	

EXHIBIT II-2

SMALL ESTABLISHMENTS' WATS USAGE BY INDUSTRY

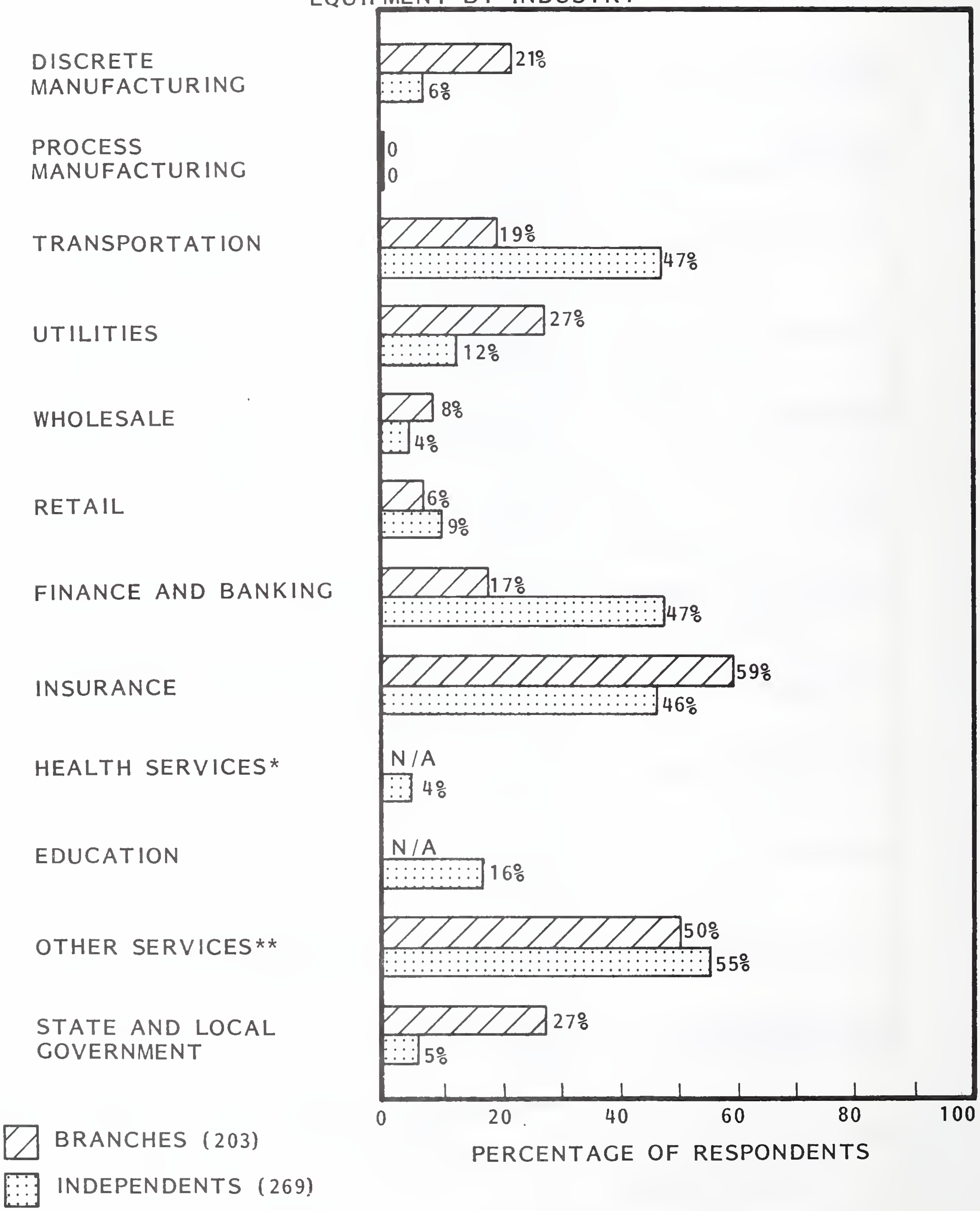


* PHYSICIANS' OFFICES ONLY

** ADVERTISING AGENCIES ONLY

EXHIBIT II-3

SMALL ESTABLISHMENTS USING WORD PROCESSING EQUIPMENT BY INDUSTRY



* PHYSICIANS' OFFICES ONLY

** ADVERTISING AGENCIES ONLY

- Word processing is desired by many, but currently used by few small businesses. However, the emphasis on less expensive systems such as electronic typewriters by IBM and Exxon Enterprises will accelerate the growth of word processing usage.

- Advertising, law firms, and insurance agents are comparatively big users of word processing equipment.

B. MARKET GROWTH

- The overall 18% growth of the small business market from 1977 to 1978 resulted in an expenditure increase from $31.3 billion to $37.0 billion. The individual information processing segments grew at different rates during the year.

- Computer equipment and services	28%
- Communications services	14%
- Communications equipment	14%
- Office automation	18%

  If the present growth of the segments remains constant, then the market will be at $88.3 billion by 1984 with an overall Average Annual Growth Rate (AAGR) of 19%.

- The annual expenditures per employee for equipment and services vary by business sector and by specific user. However, average expenditures are:

- Computer equipment and services $203

- Office equipment $167

- Communications equipment and services $420

- The driving forces in this marketplace are:

  - The availability of proven, comprehensive business software for the very small systems.

  - The education of the small businessman as to:

    - The availability of hardware and software within his means.

    - Where such systems can be examined, demonstrated, and purchased.

    - The reliability and maintainability of such systems.

C. DEMOGRAPHICS

- Small establishments are defined in the SES program as establishments having less than 500 employees. This group consists of over four million establishments employing more than 48 million people. Over 99% of all U.S. establishments are in the group which employs over 75% of all U.S. employees. The analysis by the SES program categories are:

  - For establishments with:

    - 1-19 employees: over 3,648,000 establishments.

    - 20-99 employees: over 410,000 establishments.

- 100-499 employees: over 70,000 establishments.

- For employees:

  - 1-19 employee establishments: over 16,800,000 employees.

  - 20-99 employee establishments: over 17,000,000 employees.

  - 100-499 employee establishments: over 14,400,000 employees.

- The small establishments include independent companies and branches of large corporations. Most of the establishments are independent companies. There are about 165,000 branches of large corporations included in the SES program. The Fortune 500/50 companies average 220 branches each.

D. SMALL BUSINESS SYSTEMS

- Small business systems have been announced in three price ranges: under $15,000, between $20,000 and $60,000, and over $60,000. The major announcements and their price ranges in increasing order have been:

- Tandy Corporation	$4,500-$9,000
- Apple Computers, Inc.	$5,000
- Moore Business Systems	$5,000 and up
- Sord Computer Systems	$6,000-$7,000
- Texas Instruments	$9,500-$13,000
- Heath Data Systems	$11,000 and up

- DEC $12,000
- A. B. Dick $12,000
- NEC Information Systems $13,000-$130,000
- Data General $35,000
- IBM $35,000 and up
- Prime Computer $40,000 and up
- Microdata $45,000 and up
- Burroughs Corporation $60,000-$133,000
- Texas Instruments $64,500 & $77,400

- System products of the big mainframe companies are still marketed directly to end users with no intermediaries. Different approaches are being used in order to keep selling costs down and reach the small businesses, but all approaches involve contact between the manufacturer and the end user.

    - IBM uses radio to invite businessmen to learn about computers, talk with professionals, and see a demonstration of small business systems at its business computer centers.

    - Burroughs and Honeywell invite members of particular industries in local areas to introductory seminars. The contact is by telephone and/or letters and follow-up is carried out in the same fashion.

    - Many of the large mainframe companies sell to added value OEMs or encourage software houses to write packages for their systems.

- All of the big mainframers are considering other means of reaching the small businessman and will be implementing the more promising methods within the next three years.

- The other manufacturers who have announced small business systems are attempting to use several distribution channels simultaneously.

  - Texas Instruments is selling to distributors, to added value OEMs such as Moore Business Systems, to large contract OEMs, and directly to end users via their TI supply company, a wholly-owned distribution branch.

  - Heath Company buys from DEC, re-packages, adds software, and sells to DEC OEMs and other large distributors. Heath will also sell the system via their 49 stores.

  - DEC utilizes all distribution channels.

  - Prime, Microdata, NEC Information Systems, and Apple sell to end users via distributors.

  - Tandy sells directly through their Radio Shack stores (over 7,300 stores: 4,100 company owned, the rest franchised), and their Radio Shack Computer Centers (at least 50 by the end of 1979). In addition, they have set up four regional repair centers and 51 satellite maintenance shops, in addition to technical repair facilities in each of the computer centers.

- Computer service companies who currently are providing computer power for small businesses do not want to lose their customers as small business computers fall in price and make the in-house system seem less expensive. These service vendors are:

  - Marketing small business systems with software provided by the service vendor.

- Selling terminals to encourage their small business users to become on-line customers.

- Opening "retail type" establishments providing an array of services to small businesses from space rental to complete computer systems.

E. COMMUNICATION CHANGES

- New products have been announced by many companies that will provide advanced telephone system features to smaller companies.

  - Most important is AT&T's Horizon series which provides PBX features on keysets to companies with 20-80 lines.

  - Least Cost Routing (LCS) equipment has been announced that is cost-effective with 3, 6, 13, and 20 trunk lines. This equipment can be used by very small companies in industries with a comparatively large number of trunk lines.

- Progress has been slow on the networking front, but in the long run the changes, if approved and implemented, will make access to other computer systems easier and less expensive for small establishments.

  - AT&T will most likely be allowed to offer ACS services. This will allow users access to other systems without being concerned with computer or system compatibility.

  - Xerox is moving ahead with XTEN, and GTE has purchase Telenet.

  - GTE has the U.S. marketing rights to Viewdata, the British system of two-way television. It initially plans to market the service to real estate offices involved with executive moves.

- As the U.S. becomes an information economy, these moves will make it easier for all big businesses at first, then smaller business, and finally homeowners to make use of the services available from large value added networks. Some of the applications related to communications for small establishments are:

  - Information and data base access.

  - Small business accounting.

  - Education.

  - Security alarm control.

F. RECOMMENDATIONS

- Develop a flexible marketing organization which can utilize a multiplicity of distribution channels, including:

  - Direct salesmen.

  - Dealers.

  - Systems houses.

  - Vendor stores.

- Insure that all sales channels, including direct salesmen, have methods of assisting customers to obtain software, including:

  - Programming by the branches.

  - A "clearing house" arrangement for sale of user written programs.

- Approved lists of systems houses and outside programmers.

- When utilizing external distribution channels, have available a full package for the product offering, including:

  - Equipment.

  - Software.

  - Training.

  - Maintenance.

- Clearly focus upon the intended market by:

  - Industry.

  - Establishment size.

  Insure that all applications and requirements for this market are met before moving to another market.

- Expect lower product prices and much greater product capability in the near future. Plan to handle these changes in the area of:

  - Markets.

  - Support.

  - Distribution channels.

  - Competition.

- Vendors of computer equipment should concentrate upon firms of 35 employees and above.

  - Try to upgrade existing instructions.

  - Replace competition instructions.

- Text processing equipment vendors should concentrate upon the larger establishments in the paperwork industries. Industry selection is key.

  - The education of prospective users should be emphasized.

- Communictions vendors should concentrate upon educating prospective customers about how their communications needs can be met in a more cost effective manner.

III MAJOR EVENTS AFFECTING SMALL ESTABLISHMENTS

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A. ELECTRONIC DATA PROCESSING

- Most of the activity this year has been oriented towards the increased distribution of computers to small businesses. This includes new marketing approaches, joint ventures, corporate liaison, and the offering of lower priced systems.

- These industrial hardware distributors such as AVNET have just entered the picture. Distributors are stocking small business systems from several mini and micro systems manufacturers. They are aiming their marketing efforts toward the big end users who make multiple system purchases. The hardware distributors are finding difficulty with the computer manufacturers, which the distributors feel, are requiring too much of a financial commitment at this time.

  - The computer manufacturers do not want the distributors to stock a competitive systems line.

  - The computer manufacturers want the distributors to assign at least one person full time to support the system.

- The distributors feel they cannot justify the level of support at this time and would like to take on additional systems lines and spread the cost of the

support person. The use of industrial hardware distributors is a new approach to the small business market. It is likely that they will not be especially successful unless they can provide software support to the users. They are not doing this now. However, they may evolve into such a role.

- Pertinent to small business users is the entry of two suppliers to this marketplace.

  - NEC Information Systems has announced a series of small business/distributed processing systems that range in price from about $13,000 to $130,000, and will be sold through a dealer network. NEC has been selling peripherals in the U.S. for several years and has had the business systems under developmment for the last two years.

  - Moore Business Forms has entered into a distribution agreement with Texas Instruments to market a small business computer line through a new subsidiary, called Moore Business Systems. This system will probably be based upon TI's unannounced 99/7, a high end personal computer. Moore's approach for the first year will be to develop eight to ten software packages for different industries and aim their system to first time computer users. Selling, in a minimum configuration, for about $5,000, the system will be turnkey and will be sold by a sales force separate from the forms sellers.

- DEC, in a strong attempt to reach the first time users, has pushed ahead with their retail computer stores.

  - As of September 15, 1979, five stores have been opened in addition to the one in the Manchester, New Hampshire shopping mall and in the downtown Boston area.

  - DEC plans to open three more stores during 1979.

- These stores sell two systems with only packaged software. A computer which allows users to modify applications programs will not be delivered in the stores. A business system selling for about $11,500 is available, and a word processing system with a letter quality printer is available for about $1,000 more. The software available at this time are the basic accounting packages. Specific industry oriented software may be available in the future.

- DEC started an "authorized" distributor program. The distributor, so designated after very thorough investigation by DEC, will be permitted the use of the DEC logo and will receive advertising rebates, trade show assistance, and other perquisites not available to "non-authorized" distributors, OEMs, and dealers. All of the authorized distributors must be added-value OEMs.

- Prime Computer has entered the dealer marketplace using Microdata's dealers.

  - Prime has acquired Reality[R] compatible software and is attempting to sign up Microdata dealers to carry the compatible product line that initially extended beyond the price and performance of the Microdata product line.

  - In August 1979, Prime extended their Reality[R] compatible product line downward to offer systems below $50,000. This size system can be justified by businesses at the $2.5 million to $5 million revenue level.

- Electronic Data Systems (EDS) has formed three separate groups that will be approaching the small businessman and the homeowner with computer products:

  - Inovision Corporation, an EDS subsidiary, will distribute a broad range of electronic products for the consumer and businessmen through a mail order catalog sales program entitled "The Inovision Club." This catalog will contain hardware from Texas Instruments, Atari, and Mattel, and software for the TRS 80 series and Apple systems. Calculators,

thermostats, video casettes, and recording equipment will also be offered. The Inovision Club will offer 22.5% discounts to members who join for a $55 annual fee.

- Video Systems Division will market training packages using video casettes and TV equipment. Called Evolution I, the initial package of programs will be leased to computer retailers to reduce the amount of time they must spend training their customers. The training offered will be an introduction to personal computing, an introduction to business applications, how to program in BASIC, and how to program Apple in BASIC. More detailed training courses will follow.

- Business Systems Division will open two stores in Texas immediately as computer demonstration centers. They will cater to the needs of the small business market and offer complete hardware and software business packages. The intent is to provide users with a customized approach to microcomputers.

• Apple Computer, Inc., in one of their more recently published price lists, has started to print system prices for particular user market segments. The June 1979 price list has a student's system, a scientist's system, and a business manager's system. While these system prices are not less than the sum of the parts, it is a new marketing practice by a manufacturer of "hobby" systems. It is also important that these manufacturers are recognizing the business market and are not just leaving it to the stores to configure the systems for the individual market segments. System prices are for the Apple II, announced as being aimed at the small business marketplace.

  - Apple Computer announced that it has signed an agreement with Bell & Howell to distribute the Apple II.

  - The Apple II Plus, priced the same as the old Apple at $1,200, now offers extended Basic instead of just integer Basic.

- Tandy Corporation, parent of Radio Shack stores, brought out the TRS 80-II as a small business system selling in the \$4,500-\$9,000 range, depending upon the printers used and disk storage capacity needed. Tandy also discontinued other business systems using the Tandy name. The TRS 80-II is obviously trading on the TRS 80 publicity, popularity, and sales outlets. Tandy computer centers have been changed to Radio Shack computer centers. The TRS 80-II is available from Radio Shack computer centers and from most Radio Shack stores. The computer centers, however, are also the repair depots. Either the customer or the Radio Shack store will bring the system or component to the center for repair.

- Texas Instruments announced a personal computer, the 99/4, at about \$1,150, a somewhat higher price than expected. This higher price was primarily due to the necessity of including a color TV display rather than use the homeowners TV set. The FCC initially would not waive the Class I TV device rules which do not permit the sale of standalone RF modulators needed to connect the computer to the home video set. The computer and the modulator together had to pass the Class I rules. Most recently the FCC did change the rules, but no change in price or posture by TI has been made so far. The 99/4 is being sold primarily through several large computer systems distributors and then to the retail computer store. It will also be sold directly to large retail stores and directly to the end user via TI Supply which operates at least eight retail stores. The TI Supply retail stores sell TI watches, calculators, learning aids, and now personal computers.

- Texas Instruments added two models to the low-end of its DS990 line, and packaged the high end in two systems targeted to compete with DEC and Data General products.

    - The DS990 Model 1, priced at \$9,450 with two diskette drives, is a single-user, desk-top system designed for low cost data entry and standalone small business applications. The DS990 Model 2, priced at \$13,200 with two diskette drives and two Model 911 video display terminals, is a multi-user system.

- 3270 compatible interactive communications software, a display screen forms generation package, and an interactive data base management system are all available for license fees from $1,500 to $2,400 per year.

- The enhanced pre-packaged systems, known as the Model 20 at $64,500 and the Model 30 at $77,400, offer 256KB of error correcting memory with a 24K byte cache controller, two Model 911 video display terminals, 50 megabytes of disk storage, and magnetic tape backup. A second disk can be optionally selected for backup. The DS990 Model 30 is basically a larger-capacity version of the Model 20, with 200 megabytes of storage, and a choice of magnetic tape storage or an additional DS200 disk for backup.

- The DS990 Models 20 and 30 can be expanded to include approximately 20 terminals and a total of four disk drives.

- The Heath Company has entered the small business marketplace with a system based upon a DEC PDP 11/03. They acquired software rights to DIBEX from Information Access Systems. DIBEX is compatible with DEC's DIBOL. The system will be sold by Heath Data Systems. The product will be sold to DEC OEMs, and to distributors that sell to retail outlets, and through Heath's 49 stores. The system is aimed at small businesses and carries a price tag in the $11,000 range.

- The Heath Company was bought from Schlumberger Ltd., by Zenith Radio Corporation, marking the entry by this long-time consumer electronics manufacturer into the personal computer business using Heath's 8 bit microcomputer kit of its own design. This move puts Zenith in a position to offer Viewdata or Teletext on its TV sets when these services are approved by the FCC.

- IBM broke new ground (for IBM) by announcing OEM pricing discounts on the Series/1. The amount of the discount, ranging from a modest 5% for quantity 50 to a 15% maximum for quantity 150, was not considered impressive,

although the value of the discount is actually greater than it seems when the low quantity I price is taken into account. Nevertheless, it marked the first time IBM has offered quantity discounts on any of its hardware (it had previously offered quantity discounts only on supplies).

- Contrary to common distributor practice, items in the various categories (processors, printers, disk drives, keyboard displays, and tape units) could not be assorted to obtain a higher total quantity discount. Furthermore, the discount is given in the form of a rebate at the end of the 18 month installation period, rather than as reduced rates throughout the period.

- Also this year, a slower and cheaper version of the Series/I CPU was announced, together with tape and disk drives containing new technology. Both tape and disk drives are being made by outside suppliers.

- A new communications controller for the Series/I was offered that attaches a total of eight lines (in two groups of four) by means of adapters.

- New Series/I software included the event driven executive (EDX), formerly a field-developed program; a Fortran IV compiler and object support library, including the mathematical and functional subroutine library; and a command language facility that is an addition to version 4 of the Realtime Programming System (RPS).

• Prices were cut by 30% for the older System/32, as well as 11-17% on the 5100 and 5110, leading some users to believe that new replacement systems were in the works for this bottom-end of IBM's line.

- Microdata, which has come under increasing competition from Prime Computer, announced in May the release of three new series. These are classed between their earlier Vantage entry-level system at $32,000 and the Royale-C at $61,000, and offer better price/performance and a broader line between low and high systems.

  - The model 6550 demonstrates the increase in price/performance by Microdata. The basic model comes with 32K of memory, a 50MB disk drive, two CRTs, and a 150 lpm printer for essentially the same price as the old Royale-C which only had one CRT and a slower printer. The 6550 can be expanded to 128K and 32 terminals.

  - The new entry level system, the 2200, includes 16K of memory, a magnetic tape system to provide disk storage backup, a 165 cps matrix printer, a CRT terminal with attachments, and an open communications port for diagnostics and service. The system can be expanded to 64K, eight terminals, a 600 lpm printer, and a 20MB disk for a total of about $45,000.

  - Microdata also announced its Screenpro, an interactive screen processor which cuts programming time by guiding users through a menu-driven sequence of steps to set up terminal displays and to provide for the simplified creation of programs for data input and file maintenance procedures.

- Microdata's acquisition by ITT was broken off in July, based on the pending $90 million patent infringement lawsuit against Microdata by Pick & Associates. MICD Holding Company, a subsidiary of McDonnell Douglas will buy Microdata on October 17, 1979, after 95% of the outstanding shares were tendered at $32 each.

- Data General announced the CS/30, a multi-terminal, multi-disk, COBOL oriented system to bridge the gap between the CS/20 and CS/40 at a base price of $21,000 to $49,000. This product line is intended for local system

houses to develop into a small business computer or for large companies to tailor for specific applications in data entry or distributed processing.

- General Robotics entered the market with its Constellation series that is DEC LSI-11 compatible. The systems range from $9,000 to $30,000, depending mainly on the amount and type of disk storage that is included. They will run the DEC RT-11 software products.

- Burroughs announced three new models in its B1800 series, superseding the B1825, B1835, B1865, and the earlier B1860. Prices range from $60,000 to $133,000 for typical systems. Software is unbundled and ranges from $128 to $458 per month for the master control program, plus additional amounts for the optional BASIC, COBOL, or FORTRAN compilers. These new systems correspond roughly to the IBM System/38 in performance.

- Cromemco Corporation announced a multi-user package in February for its S-100 based microcomputers. The hardware/software package provides for bank-select of up to eight users with up to 64K bytes of memory apiece. A timesharing operating system allocates memory banks and queues disk requests. Prices for the total system are in the $5,000-10,000 range.

- Atari, the video game manufacturer, was the only maker to receive FCC type approval for its Model 400 and Model 800 personal computers, which attach directly to the home TV set. The Model 800 offers dual solid state cartridge programming, up to 48K of user RAM, and optional peripherals, including a high-speed floppy disk and a 40 column printer.

- Beck Corporation of Neptune, New Jersey, has introduced a digital image processing system for $2,900. The system is based on the Z-80 and will also offer commercial data and word processing applications.

- Sord Computer Systems, a Japanese microcomputer manufacturer selling small business systems in the $6,000-$7,000 range, was reported to be looking for a West Coast plant site because of high manufacturing costs in Japan.

- Eight inch Winchester type disk storage units have been interfaced to microcomputers, but they are not yet generally available. Their reliability and storage capacity (5-20 megabytes) make them an ideal unit for small business systems. Those drives seen as part of a small business system were attached, but free standing.

  - The eight inch Winchesters are being designed to be as compatible as possible with standard diskette drives as far as size, controller interfaces, and electrical requirements are concerned.

  - Storage capacities for both floppy and Winchester drives can vary widely. The "mini-Winis" generally offer storage capacities of five to twenty megabytes on a single platter, while a double density, dual-sided eight inch floppy usually offers only one to two megabytes.

  - The price differential is not at all linear, currently running about $500 for the floppies and $1,500 for the Winchesters, but these will change as production volumes increase.

- While the hard disks will provide sufficient storage for small businesses, a second device will be required for file back-up.

- Data General Corporation introduced a 12.5 megabyte, Winchester-type disk drive for its MicroNova, Nova and Eclipse computer systems, selling for about $5,000.

- Another memory device that is supposed to replace floppy disks soon is the bubble memory. This solid state memory system is finally being delivered in small production quantities and is being used currently in printers. When larger capacities are produced, they will be used in CRT terminals and then later perhaps as mass storage devices.

- Centronics introduced a new line of serial matrix printers selling for about $1,000. The models differ in character set, but all models have a 50

character-per-second print speed, 80-column line length at ten characters-per-inch, a single line buffer, and seven-by-seven dot matrix printing. Centronics expects to sell over 100,000 of the printers in the U.S. to the professional and very small business markets.

- Dataroyal, Inc. has entered the under-$1,000 printer market with its IPS-5000 series consisting of 80- and 132-column, 150 character-per-second, nine-by-nine dot matrix, bidirectional printers. The printers are aimed at small business system manufacturers that have had to choose between higher price printers that generally offered more capability than needed and low price "hobbyist" printers that can not offer high output or withstand heavy use.

- Control Data's Service Bureau Company subsidiary announced that it will begin marketing its first system for user site installation - an IBM Series/1 based system for credit unions.

  - The system will support up to 25 on-line terminals and can be used by credit unions of 4,000 or more customers.

  - Marketed under the name FOCUS, the system will be available with on-line share, accounting, general ledger, and history file searching software.

  - Similar systems for other applications are being studied.

- The Service Bureau Company has also opened a business and technology center in downtown St. Paul, Minnesota. The center leases office space to small business tenants and sells to the tenants and nearby clients, services ranging from telephone answering to computer programming.

  - Additional centers are being planned for Toledo, Minneapolis, and Philadelphia.

- Tymshare has entered the DDP market by introducing a Series 1100 intelligent terminal. This source data entry unit allows users to enter data and perform certain functions off-line. Computing results can be stored locally on the 1105 dual diskette drive.

  - The terminal is the Texas Instruments 771/1. Tymshare separated it in two parts for marketing purposes. The 1100 terminal is $4,625 and the 1105 diskette drive is $3,930.

- Tymshare acquired TRW's Validata credit card and check verification service, to be integrated with Tymshare's existing credit authorization network.

- On-line Systems, Inc., is entering the DDP market by selling its Outline/1 terminal for $5,950 to the computer services' users for tasks that have not been cost effective due to extensive data entry requirements.

  - The Datapoint based terminal will have a 32K byte memory, dual floppy disk drives, a CRT display with keyboard and a full duplex 1200 BPS modem.

- Bowne Information Systems, a word processing, time-sharing services company, has developed software which enables other manufacturers' word processing systems to act as remote terminals to Bowne's time-sharing network as a vehicle to deliver a variety of its information services to the 100 United States cities covered by the network.

- Reynolds and Reynolds Company agreed with Zonic Technical Laboratories, Inc., to build a series of intelligent terminals to be marketed primarly to Reynolds' computer services customers.

- Timesharing services are now available to personal computer users at rates that personal computer users can afford from two computer services companies.

- Telecomputing Corporation of America is offering a service called the Source Information Utility. The fees are:

  - $100 one time hook-up fee.

  - $15.00 per hour during prime time.

  - $2.75 per hour for non-prime time (6 P.M. to 7 A.M., Monday through Friday, and all day Saturday, Sunday, and holidays).

  - $5.00 minimum monthly charge.

  - $.033 cents/2048 characters block/day for disk storage.

- For these fees, access is provided to over 2,000 data bases, including UPI news service, financial news and quotations, the Dartmouth College education library, the New York Times Consumer Data Bank, entertainment guides, business accounting packages, etc. Billing is done through common credit cards only.

- CompuServe's Personal Computing Division is offering MicroNet access during off peak hours to personal computer users. The fees are:

  - $9.00 one time hook-up fee.

  - $5.00 per hour.

  - $1.00 minimum charge per access (12 minutes).

- Up to 64K bytes can be stored on-line for up to seven days between accesses, and the system will disconnect automatically if the line is not used for 15 minutes.

- Both of these services vastly extend the power of a home computer. For very small businesses, whose paperwork can be done in the evening, this might prove to be an economical resource.

B. COMMUNICATIONS

- The United States Postal Service has announced plans to experiment with electronic mail service. This action is opposed by the private communications companies since they feel this new area should be open to all. Once the USPS gets involved, the private communications companies feel they will be locked out from the electronic mail market as they are now with handling first class mail. The FCC is opposing the USPS action also, claiming that since it is a communications service, they must approve and license the service.

- GTE has acquired the U.S. marketing rights to Viewdata, a British system of two-way television using telephone lines for access to a multitude of data banks and other information services. Several other U.S. companies are experimenting with similar systems. Communications companies, cable TV companies, TV broadcasting companies, and computer service companies are all interested in the potential of selling information to owners of TV sets. The efforts are international in scope. The system was developed in Great Britain, exported to the Netherlands, revised by Canada, and is now being tried in the U.S. on a limited scale.

- AT&T has introduced its Horizon telephone equipment. This hybrid key/PBX system, using an Intel 8080 MPU in the master control unit, and designed to handle 20 to 80 telephones, is aimed at the small business PBX market. The system offers optional PBX-like features such as program mobility, call transfers, station-call restrictions, and pooling arrangements for quick access to WATS or FX lines. The Horizon system reduces on-premise cable requirements from the standard 25 pairs to four pairs. This greatly simplifies installation of the service.

C. OFFICE

- Burroughs has formed an Office Automation Division consisting of their Redactron (word processing) and Graphic Sciences (facsimile) subsidiaries. The new division reports to the Office Products Group. Burroughs is seeking to buy Context, an OCR scanner manufacturer to round out the group. Context makes OCR devices for word processing, editorial, and typesetting systems.

- Nixdorf Computer Corporation became another in the line of minicomputer manufacturers who now offer word processing capability when it announced its Multi-Text 8840 system in February. The maximum system, comprising four terminals, two printers, and the 64K byte processor, sells for $40,000. Units can be purchased separately as needed, or the entire configuration can be leased on a 36-month plan.

- Wang Laboratories, Inc. added a third model in its word processing System 5. The new system, Model 3, is more sophisticated than Models I and 2 and is priced at $9,900. Model I is priced at $5,900 and Model 2 is in between. Model 3 consists of a CRT, keyboard, and floppy disk drive, the same hardware as Models I and 2, but has much greater editing capabilities and software features such as:

  - Basic mathematics functions.

  - Paragraph numbering and retrieving.

  - Sorting by number or letter.

  - Automatic footnoting.

  - Decision processing.

- New low-end electronic printers have been introduced by Canon and Konishiroku Photo Company of Japan. They offer technology parallel to the IBM 6670 information distributor and the Wang image printer products, against which they hope to compete.

  - The Canon printer, which uses a laser beam to project images, is housed in a desk-top cabinet and prints ten pages a minute. The current model uses liquid toner, but a dry toner will be available within a year. It will sell for $5,000-$8,000 a unit in quantities.

  - The Konishiroku device uses an optical fiber tube-imaging technique in its U-Bix electrophotographic copier, which is marketed in the U.S. as the Royal Bond Copier 115. The copier is also the print mechanism for Wang's image printer. The U-Bix copier/printer can be used to provide hard copy from a CRT display, and is also capable of merging digitally-recorded text with photographic images on one page, at the rate of 15 bond paper sheets a minute. It will be marketed for office data processing, word processing, facsimile, and electronic mail functions.

- QI Corporation of Farmingdale, New York, was one of the earliest companies to offer a microcomputer-based combination word processing and data processing unit almost two years ago. In May of this year, the company announced that it now includes removable bubble memory modules, 64K bytes of system memory, and a 160 character-per-second thermal printer. Designated the basic office machine, the device is said to have the ability to handle documents originating on facsimile equipment. Facsimile transmissions can be digitally stored in memory or printed on a built-in print mechanism.

  - The machine uses the PL/I language exclusively, another unique feature among microcomputers. It sells for $9,750 and is scheduled for delivery in the first quarter of 1980.

IV VENDOR ANALYSIS

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A. AT&T

- There is almost certainly no company in the U.S. which has more small business establishment customers than the Bell System. At annual revenues of $41.7 billion in 1978, a market presence of 133 million telephones, and approximately 200 billion telephone calls per year, Bell permeates American business and home life like no other company.

- Regular revenue growth of 12% annually and an increasingly market responsive set of products, services, and business strategies make AT&T a very significant factor in the small establishment marketplace.

- The event of greatest significance in the long run, in terms of Bell's impact on the small establishment marketplace, are a pair of preliminary decisions made in Washington, D.C. Both the FCC and the U.S. Congress made preliminary recommendations in their communications deliberations which would allow Bell to participate in the data processing market.

- Bell's new product and service offerings in the data communications marketplace have been hampered by continuing questions as to their legality. Bell, as an entity in communications related data processing, will at some future point be of great consequence to the market, particularly that of small establishments.

- Of more near term significance to the small establishment marketplace is Bell's introduction of the Horizon services PBX. This microprocessor based system is designed for installations of as small as 20 telephones. This kind of unit, available in these small sizes only from other suppliers until now, brings modern telephone technology and all of the cost and convenience features associated with such technology, down to small establishments.

- Bell's primary product for small establishments is POTS, Plain Old Telephone Service. POTS is not as plain as it used to be, with services such as WATS both in and out, remote call forwarding, and a growing host of different equipment arrangements including the Horizon services mentioned above.

- For data related services, Bell also has an increasing range of services and products. The most relevant service for small establishments is basic Dataphone, a modem equipped POTS line. Dataphone Digital Service is a leased line service now accessible in 150 cities.

- Bell also provides a relatively limited array of data terminals such as the 43 printer, the 40 series of CRTs, and the low cost VuSet CRT and associated transaction telephones.

- For the future, AT&T can be expected to increase its service and product offerings dramatically, in both voice and data. The Advanced Communications Service, a packet switched, value-added, data communications service announced last year; while it has been delayed by software problems as well as regulatory issues, will be introduced within the next ten years and will be of great value for interconnecting small establishments to various computer based systems.

- A more aggressive marketing policy on the part of Teletype, Bell's terminal producer, will bring an expanding line of terminal products to the marketplace.

- Bell's increasing relationships with outside suppliers such as Plantronics, Digital Equipment Corporation, and Northern Telecom, will result in an even faster expansion of new voice and data products and services from AT&T.

- AT&T's competitors in the small establishment marketplace must assume that Bell's already existing relationship with these small customers will receive at least the same increase in marketing attention as Bell's other served markets.

B. APPLIED DIGITAL DATA SYSTEMS

- ADDS is a manufacturer of CRT terminals which produced about 40,000 terminals in 1978 for an annual revenue of $46.8 million. Most of these sales have been to OEM customers. NCR has represented almost 40% of ADDS' sales in recent years, but is expected to drop sharply in 1980 as NCR integrates these CRT terminals into its own manufacturing facilities.

- ADDS product line has traditionally been Teletype compatible CRT terminals. In the past year though, the line has been significantly revamped with a range of devices from under $1,000 for simple CRTs, up to two $9,000 multi-station distributed processing systems.

- Most of these product line expansions and new distributor based marketing strategies can be traced back to a 1978 re-organization which saw a complete new management team installed, with the exception of the Chairman.

- The new product line, designated Regent Models 20 through 300, while continuing to represent a broad line of CRT terminals, is shifting more toward small business computers centered around the System 75, a standalone system, and the Model 300 which is the multi-terminal system.

- One of the interesting elements of ADDS business strategy is the use of $20 million raised to purchase Milgo Electronics. When that acquisition was lost to

Racal, ADDS used the money to build a manufacturing facility in Utah which provided its with a 15% reduction in manufacturing costs.

- ADDS has historically been very profitable, based on high volumes and manufacturing efficiencies. Whether the new kinds of business directions can generate enough sales volume to take advantage of these manufacturing advantages has yet to be seen.

- The significance of ADDS to the small establishment marketplace is the presence of another manufacturer of small business systems hardware which can very likely be used by system houses to provide more computer based information solutions for small establishments.

C. AUTOMATIC DATA PROCESSING

- ADP started in the data processing business in 1950 doing payroll processing on a service basis for companies in the New York City area. Today, ADP is the largest independent computer services company in the world. Payroll processing, now performed on a worldwide basis, still represents about half of ADP's $334 million annual revenues. The rest of ADP's growth is primarily attributable to an aggressive acquisition program. These acquisitions put ADP into other kinds of DP services businesses, including timesharing services, services for banks, automobile dealers, pension funds, security firms, etc.

- While these acquisitions have moved ADP into a variety of new technologies, new applications, and new users, the most significant characteristic of ADP is its continuing growth of the old fashioned batch payroll type business. Batch data processing of this type has long been forecast to recede in favor of on-line processing technologies. ADP's performance shows that "it ain't necessarily so."

- For the small establishment marketplace, ADP represents not only a source for processing their payroll and similar accounting functions but more importantly, a demonstration that keeping solutions simple and understandable to the users continues to be a useful marketing technique.

D. BURROUGHS CORPORATION

- Burroughs is an old time business machine company which ranks second behind IBM in data processing related revenue. In 1978, Burroughs reported total revenues of $2.4 billion. Through the 1970s, Burroughs has been one of the most profitable of the computer companies, and 1978 was the company's best year yet.

- Burroughs' main activity in the last year has been an aggressive rate of introduction of new products. These products have generally been improved price/performance computer systems designed to allow Burroughs to at least keep pace with its primary competitor, IBM.

- Burroughs' computer product line is a full range of systems with emphasis on the middle of the range. Burroughs is second to IBM in the number of small business systems installed. Its main strength in these small to medium sized computers is its position in the banking industry, where it derives about one-third of its revenue. Less than 40% of its revenue comes from international markets, a low figure for mainframe manufacturers.

- Burroughs has, in addition to the computer product line, an Office Automation Division organized around its Redactron and Graphic Sciences subsidiaries. This division is also responsible for Burroughs' sizable revenue (over $250M annually) from business forms and supplies.

- Burroughs has the reputation for being a financially conservative organization, with a marketing expense ratio that is lower than most mainframers, but with

a profitability which is much higher. Burroughs' current strategy is to increase its offering of large and small end products and to concentrate on product applications which IBM has not exploited, particularly in banking.

- Some new areas which Burroughs is currently exploring appear to be related to office automation, and to the possible OEM sale of its small system products.

E. CONTROL DATA CORPORATION

- CDC achieved \$2.7 billion in revenue in 1978, of which \$1.9 billion was attributable to computer operations, the rest coming from Commercial Credit, its financial services business. This DP performance was an increase of almost 25% over the previous year, almost \$700 million in revenue derived from computer services, including \$353 million from its Cybernet and SBC operations. Another \$600 million of revenue was attributable to CDC's terminal and peripheral products operations.

- CDC's financial performance, in terms of net income, is at 3.3% of revenue, the lowest of the major computer manufacturers. The net income from computer operations was only 2.2% of revenue. The 1979 profit performance appears to be improving.

- CDC operates its computer business in three different markets. The computer systems business operates in the high level scientific calculations marketplace. The peripheral equipment business is primarily an OEM business and has been very successful for CDC. Many of the peripheral equipment opportunities are the result of joint ventures with NCR, ICL, and Honeywell.

- The computer services business, a significant portion of which was derived from the 1973 acquisition of SBC from IBM, is oriented to specialized services for existing computer users, particularly in the financial applications.

- CDC represents a significant factor in the small business marketplace, primarily from its position as the leading semi-independent manufacturer of computer peripheral equipment and from its computer services business. These terminals and storage devices, used by minicomputer manufacturers and other small system houses, represent another viable alternative to the IBM small business computer equipment.

- Another event of some significance by CDC, was the recent announcement by SBC that it would begin marketing on-site computers, particularly for credit unions. These systems, to be called Focus, represent a significant departure from SBC's services policies of the past, and represent yet another small business computer alternative from CDC.

- CDC recently opened a business and technology center in St. Paul, Minnesota. This center (more of which are planned) offers office space and other services, such as telephone answering and data processing, to small business tenants.

F. DATA GENERAL

- In fiscal year 1978 which ended September 30, 1978, DG achieved total revenues of $380 million, and a net income of $40 million. This level of profitability is one of the primary distinctions between DG and other companies in the computer business. Data General, at the same time, spends over 10% of its sales on R & D.

- Like most of the other large computer manufacturers, the most significant events with Data General were related to further advancement and broadening of the product line. This past year, DG efforts in programming support capabilities came up with a minicomputer compatible PL/I language, which should greatly aid users trying to distribute applications that had previously been performed on a large IBM mainframe.

- Data General's product line is exclusively in the area of minicomputers and peripheral devices, of which 80% are now manufactured in-house. The minicomputers range from the microNOVAs, starting at $1,300, up to Eclipse systems, at up to $500,000. Most of these products are sold through OEMs or distributors with DG providing extensive program development support, but no end user application programs.

- The significance of DG's performance in the minicomputer business, both with distributed systems as well as with small business computers, is the relative ease with which programs developed for large mainframes can be adapted for smaller and/or distributed systems. DG's new PL/I adaptation is a good example of this.

G. DIGITAL EQUIPMENT CORPORATION

- DEC has long been the acknowledged leader in the minicomputer market. With annual revenues approaching $2 billion, and a net income of almost $200 million, DEC is in a financial position to expand in many directions, and it has done so.

- Some of DEC's most aggressive moves in the last year have been in the office automation area. A rapidly increasing array of word processing products includes both single workstation systems and multiple workstation systems. DEC has also pressed very hard for integrated DP/WP applications on these as well as on its DP products.

- DEC recently announced that it has developed an internal electronic mail service using the MUMPS computer language developed at Massachusetts General Hospital. DEC has been experimenting for some time with an EMS system called Comet, developed by Computer Corporation of America, but has apparently opted for the internally developed system.

- DEC's major products are its well known line of minicomputers. These range from the $200 LSI-11 single board computer up to the VAX-11/70 with configurations costing up to $1 million. Most of the sales are on an OEM basis, but DEC is moving increasingly toward end user sales. DEC also has a growing line of peripheral devices, particularly a very successful line of matrix printers and CRT terminals.

- Within the last year, DEC has opened a number of retail stores oriented toward sales to small businesses. The pilot stores in New England, which have been in operation for about one year, have apparently been sufficiently successful that DEC has opened two stores in New York City and will have about ten in operation by the end of 1979.

- DEC can be expected to move aggressively in the small establishment market, both with direct sales to the end user, as well as through its traditional OEM customers. The products will be both data processing and word processing, with continuing emphasis on the integration of the two.

- In DEC's existing retail stores, it is offering an $11,500 small business computer with a fairly complete package of standard business software. A word processing system is available for $12,500, due to the addition of a letter quality printer.

H. GENERAL TELEPHONE AND ELECTRONICS CORPORATION

- GTE is a large conglomerate, oriented primarily to the communications industry. Of total revenues of $8.7 billion, about half comes from telephone services, where GTE is second in size to AT&T. The other half of the company's revenue comes from manufacturing operations, such as Sylvania, Automatic Electric, Lenkurt; and from financial services.

- The most dramatic event which occurred at GTE in the last year was the acquisition of Telenet. Operating since June as a subsidiary, Telenet offers packet switched, value-added communications services which have great potential value for small establishment users. The use of such a service would allow a small user to communicate economically with many different data systems without changing the speed, code, or transmission protocol of his data terminal or data system. The acquisition of Telenet by GTE should bring enough resources and enough credibility to put this valuable service on a solid footing.

- GTE also offers a range of information services, primarily stock quotes, to security dealers. GTE has been one of the leaders in such services since acquiring Ultronics in the mid-1960s.

- GTE-Automatic Electric and GTE Lenkurt are manufacturers of communication equipment such as digital PBXs, both for carriers as well as end users.

- GTE is also expected to begin offering services this Fall using the Viewdata concept. This British developed concept transmits data over telephone lines to modified television sets in homes and businesses. GTE has obtained a license from the British developers to use the system in the U.S. If Viewdata, or Prestel as it is now called, is successful, it represents one of the very real possibilities for providing data service to homes or to very small businesses. GTE, perhaps only second to AT&T, is in a commanding position to make such a service successful.

I. HEWLETT-PACKARD

- In 1978, H-P revenues from data products for the first time exceeded its revenue from test and measurement products. Out of total revenues of $1.7 billion, data products achieved $761 million. This revenue is derived from a very broad line of products, ranging from hand held calculators through desk

top calculators, up to super minis supporting multiple users and distributed processing capabilities.

- During the last year, H-P significantly expanded their product offerings in all phases of this data product line; but of particular consequence to the small establishment marketplace are the expansions in data terminals and in distributed network products.

- Most of H-P's data product line has been oriented to scientific and educational applications. Using the company itself as a proving ground, H-P has moved this product line strongly toward business data processing applications. Included in this category is H-P's own intra-company electronic mail system operated on H-P distributed processing equipment and terminals.

- While H-P can be expected to continue its market strength in the scientific marketplace, this growth of presence in the business DP market, particularly the distributed DP market, will become of much greater significance to the small establishment marketplace. H-P's business DP presence will probably be felt most in those industries with a large technical content, such as chemical and electronics manufacturing, education, and construction where H-P's reputation in scientific applications will be transferrable to business applications.

J. HONEYWELL

- In 1978 Honeywell grossed $3.5 billion, of which $1.3 billion was derived from its information systems segment. Much of this revenue has been obtained by acquisition of the installed base of computer users of GE in 1970 and of Xerox in 1976. Many of these users have since been converted to Honeywell developed systems and that process is still underway, particularly with the Xerox base.

- In the last year Honeywell has made dramatic market advances in the minicomputer field with its Level 6 systems. These systems, a revival of Honeywell's efforts in minis, are oriented around communications in order to implement DDP systems. They are being sold mostly to Honeywell's existing large system user base, but are also being introduced to new end users both through OEMs and through a dedicated sales and support group.

- Honeywell also acquired Incoterm, a CRT terminal manufacturer, in late 1977, giving it a position in the airline industry.

- Honeywell's major significance to the small establishment marketplace at is in the capability of its mini product line to implement DDP systems for branches, as well as its L62 small business computer line for the larger end of small establishments.

K. IBM

- IBM is an extremely significant force in the small establishment marketplace. In 1978, the total gross income of IBM (worldwide) was \$21 billion. Of this total sum, \$17 billion was derived from the sale of data processing equipment (growth of 15.6% in 1978), and \$3.4 billion was for office products (growth of 20.1% in 1978). About 46% of these sales are domestic U.S.

- Of significance to the small establishment marketplace is IBM's use of media advertising to reach small businessmen and to invite them to seminars about small business machines. IBM has been quite aggressive in this approach which indicates that new marketing techniques will be used to reach small businesses.

- Additional indications of IBM's willingness to utilize new distribution techniques is by its pricing of Series/1 minicomputers. In March 1979 a discount policy was implemented for hardware and licensed programs, which will encourage systems houses to utilize the Series/1 for small business systems.

- IBM offers to small establishments:

  - The IBM System/38, which sells from $120,000 for a small system to $362,000 for a large system. At a $200 expenditure/employee/year, and if the system is amortized over three years, this system would be suitable for an establishment with two hundred or more employees.

  - The System/34, which was introduced in April 1977, can handle up to eight users simultaneously. A minimum scale system sells for $35,000, and a large-scale system sells for $104,000. Thus, establishments with 60 employees are logical candidates for a System/34.

  - The desk top (portable) 5100 computer can be purchased from $6,000 to $16,000 which translates into a ten employee firm. The 5110, which is a computing system version of the 5100 and utilizes magnetic media memory, tape cartridges, and diskettes, sells from $10,000 to $25,000.

- In the office area, IBM offers a full range of word processing products for the small establishment marketplace. They include:

  - IBM mag card typewriters, which sell from $6,000 to $14,000, depending upon time mode.

  - IBM memory typewriters, which sell from $5,000 to $6,000.

  - IBM electronic typewriters at $1,700.

- In addition, IBM sells the 6640 document printer at a price of $24,000, and the 6670 information distribution at $75,000. These products, plus the IBM copier series, are targeted for larger companies.

- IBM does not sell facsimile products, key sets, or PABX/EPBX systems (in the U.S.) at the present time. However, IBM certainly has the capability of selling this equipment and will probably do so at some point in time.

- IBM will continue to be a major force in the small establishment area due to the following:

  - Size, reputation, and technology strength.

  - Aggressiveness and willingness to use new distribution channels.

  - Reputation for service and reliability.

  - Willingness and ability to lease and rent equipment.

  - Full range product line in both EDP and office equipment.

  - National account marketing system to reach branches.

- Other vendors to small establishments can assume that IBM is now, or will soon be, competing against them (with new hardware products if necessary). It is likely that the product which IBM offers will be more expensive than the competitive offering. Competition to IBM should:

  - Use IBM to perform initial concept selling, and then follow IBM to the account with a more directed package.

  - Develop "showcase installations" to demonstrate the efficiency of their products.

- Develop industry specialized distribution channels which show a prospective customer that support is:

  . Specialized for them.

  . Local.

- Aggressively advertise to have their name in front of the prospect.

L. NCR CORPORATION

- NCR was ranked third in DP revenues behind IBM and Burroughs. NCR has for over a century been the leader in cash registers and has only in the 1970s gotten seriously into electronic computers and peripheral devices. NCR's revenues in 1978 were $2.6 billion with a net income of $194 million.

- During the last year, NCR put a capstone on its significantly expanded product line with the very large-scale V8600 family of computers. NCR also sold its Appleton Papers Division and bought Comten, a manufacturer of computer communication front-ends. It also continued the process of vertically integrating its terminal product line with a series of terminal announcements, particularly the 7500 and 8000 series intelligent terminals.

- Of greatest consequence to the small establishment marketplace is NCR's continuing emphasis on the retail market, with a complete line of POS terminals and peripheral equipment to go along with the central mainframe hardware. As large and small branches of retail chains push further into automation, continuing hardware and software developments at NCR will at least keep pace with the market requirements.

M. TANDY CORPORATION

- Tandy is the operator of the Radio Shack chain of retail electronic stores. In addition, Tandy manufactures approximately 40% of the items sold in its stores. Tandy's total revenue for fiscal year 1979 (ending June 30, 1979) was $1.2 billion. The TRS-80 personal computer from Tandy, introduced in mid-1977 has achieved a sales rate of over 100,000 units per year. This basic computer is manufactured by Tandy. The peripherals, including printers, disk drives, etc. are purchased on an OEM basis from other manufacturers, such as Centronics.

- Tandy has learned a great deal from its experience in selling these computers for the last two years. One of the things it learned was that the demand for a computer at under $1,000 was much, much higher than anyone had estimated. Another thing which it learned was that the customers for such a unit were primarily businessmen or other people, such as educators, with practical applications. The market was entirely different from the toy market to which the video games had been sold.

- The most significant events from Tandy in the last year were its introduction of the TRS-80 Model II and the opening of a number of new stores dedicated to the sale of small computers.

- The TRS-80 Model II is a small business computer with built in diskette memory and a price tag of $3,450. It, along with a growing line of software products, are very specifically aimed at small establishments.

- The new Radio Shack computer centers, of which 38 were open as of June 1979, are also oriented primarily to the small establishment market.

- While Tandy started with no great expertise in either computers or small businesses, or the marketing of computers to small businesses, its experience over the last two years has given the company and its store managers a wealth

of such expertise now. This experience combined with the user exposure to new technology, should allow Tandy to be of great assistance to the automation of business information in small establishments.

N. TEXAS INSTRUMENTS

- In 1978, TI increased its annual revenues to over \$2.5 billion, a 25% increase from the previous year. A significant portion of this growth was due to TI's digital products: the hand held calculators through small business computers, which constitute about one-third of TI's total revenue. The computer and terminal portion of this product area represents about \$205 million. TI's largest business is in integrated circuit components.

- TI made major moves in the last year at the top and at the bottom of its computer systems product line.

  - At the top of the line, TI introduced the DS-990 Models 20 and 30 which will sell for system prices at \$60,000 to \$140,000.

  - At the bottom end, TI introduced its first home computer the TI 99/4, with a selling price of \$1,150.

  Both of these units are part of a product line. The DS-990 product line is a set of minicomputer systems which are oriented to end users with distributed processing applications and to small business users through OEMs. This entire product line, which now includes seven models, was initiated less than two years ago by TI.

- The personal computer line, of which the 99/4 is the only unit delivered so far, is also expected to include additional, larger units. The 99/7 at \$5,000 is expected to be software compatible with the DS-990/4, which at \$10,000 is the low end of the 990 system line.

- TI is exploring a variety of distribution channels for the 99 series, including hobby stores as well as its own existing retail outlets.

- The significance of all this to the small establishment marketplace is the potential impact of what TI might do. TI's history of participation in markets has been to pursue an aggressive price reduction policy, premised on riding an experience curve. Its actions in the hand held calculator business is the best example of this kind of policy. While such a policy is very difficult for independent distribution channels to handle, it provides great price/performance for the end user. In the small establishment marketplace, this kind of a policy by TI could bring very low cost computing power to many kinds of small businesses.

O. TYMSHARE

- Tymshare, founded in 1966, was one of the earliest of the independent remote computing service companies. With 1978 revenues of $150 million, it is now one of the largest. The company's primary revenue is derived from its RCS operations, but it has added peripheral services, such as a value-added communications network (Tymnet), and it has created or acquired a number of industry/application oriented services.

- One of the most significant of these acquisitions was that of the WSBA, Western States Bankard Association, a charge card authorization service then operated by an association of western banks. This operation, now called Tymshare Transaction Service, contributed $25 million in revenue in 1978.

- Other specialized acquisitions included the Autotax operations from Research Institute of America and Medical Information, Inc.

- The Tymnet system, operated since early 1977 as a value added common carrier, adds about $12 million in annual revenue from users over and above its use within the Tymshare RCS operations.

- Tymshare's most significant event to the small establishment market was the introduction of an intelligent terminal, the Series 1100, to operate with Tymshare's remote computing services.

- Of greater long-term significance is the Tymnet service. Tymnet offers capabilities precisely of the sort that Bell's ACS promises to offer. Tymnet has a headstart on Bell and with a total of $20 million worth of internal and external usage of the service, is well on the way to providing a viable set of data communications services which can be of great value to users, particularly to small establishments that do not have the alternative of implementing their own systems.

P. UNITED TELECOMMUNICATIONS, INC.

- United Telecom is a holding company that operates three businesses which totalled $1.4 billion in revenues in 1978. United Telephone Systems is the third biggest U.S. telephone network (after AT&T and GTE) and represents $1.1 billion in revenue. North Supply Company is a distributor of telecommunications products, with $272 million in revenue, of which two-thirds is to United Telephone Systems. United Computing Systems is a remote computing service vendor with annual revenues of $76 million.

- The primary events at United Telecom have been a continuation of their acquisition of companies in related fields. The United Telephone System bought the Winter Park, Florida telephone company to extend their coverage of the sun belt states.

- United Computing Systems bought On-Line Systems, a Pittsburgh based remote computing service.

- This continued business expansion, which has averaged almost 20% annually for the last 10 years, is putting United Telecom in a powerful position in the telecommunications and computer services markets.

Q. UNIVAC

- The Univac division of Sperry Rand achieved total revenues of over $2 billion in fiscal year 1979 (ending March 31). The largest single item of this revenue was attributable to large mainframes, specifically the 1100 Series in which Univac had developed a solid position.

- Univac has three major product lines: the large system 1100 series, the medium sized 90 series, and a minicomputer product line built around the nucleus of the acquisition of Varian Data Machines in 1977.

- It is this latter product area in which Univac is investing heavily. Univac has not had a minicomputer based product, either for DDP applications on its large systems or as a small business computer. The V77 product line, introduced last year by a new organizational entity in Univac called the Minicomputer Operation, was originally oriented to DDP support of large scientific applications. It is being re-oriented toward business data processing.

- Univac comes into this DDP marketplace with all of the necessary ingredients to be successful; particularly, an installed base of large computer users and a maintenance organization. The significance to small establishments of Univac's entry into DDP is that, as large organizations distribute their data processing out to the branches, Univac system users will have a viable path to follow instead of having to change vendors.

- The Univac BC/7 family, ranging in price from about $22,000 to $50,000 is aimed at small businesses, especially first time users and those using accounting machines. The "Escort" language is very useful in training new users to write their applications software and it also facilitates this process. As this family progresses it could be a very big factor in the marketplace if the appropriate sales effort is applied.

R. WESTERN UNION CORPORATION

- WU had total revenues of $688 million in 1978, which represented a continuation of the 6% annual growth rate achieved over the last ten years. At the same time, however, the source of revenue has changed significantly. The telegram service which represented about 50% of total revenue as recently as 1968 declined to less than 10% in 1978. Mailgram services, which did not exist until 1970, will exceed telegrams in total revenue this year.

- The most significant event at Western Union in the last year was a change in top management. Russell W. McFall, chairman and CEO at WU for the last 15 years, retired and was replaced by Robert Flanagan, the company's chief financial officer.

- WU is in the throes of a massive facility conversion from the use of AT&T plant to its own local transmission and switching plant. An in-place transcontinental microwave system and a domestic communications satellite system provide WU with good long distance facilities. Short distance facilities or local loops have been almost completely leased from Bell. A price increase, or more accurately, a discontinuance of a favorable contract with Bell for these facilities could impose a significant cost increase, up to $50 million per year, without the on-going facility conversion.

- Beyond this point, WU has been offering computer based, value-added communications services for over ten years. The use of these services has

enabled many medium to smaller sized firms with nationwide operations to implement a message communication network comparable to those operated by the very largest companies.

- In another development, the ECOM service, a low cost, high volume electronic mail service proposed as a joint venture between WU and the USPS, much like the existing mailgram service, got caught in some regulatory cracks between the Post Office, the FCC, and the Congress and was put into a deferred action category.

S. WANG LABORATORIES

- Wang's annual revenues reached $321 million in fiscal year 1979 (June 30) for a 62% sales increase from the previous year, while net income rose 83% to $28.6 million. Almost all of this growth came from internally developed products.

- Wang participates in two primary markets: data processing and word processing, and has been a pioneer in the systems technology of both. Wang is now pioneering in the even more difficult task of integrating these two functions, but the generation of revenues from these integrated DP/WP systems have not yet begun.

- Wang's DP line is primarily a line of minicomputer systems called the System 2200. This line, recently broadened to allow multi-user applications, is supported by a complete array of peripheral equipment, an increasing fraction of which is manufactured by Wang itself. The price range of the Wang product line goes from $4,800 up to $800,000.

- Wang sells its DP line in three markets:

  - Small business computers.

- Small scientific processors.

- Distributed data processors.

- Wang's word processing product line has concentrated most heavily on multi-station, shared logic systems and holds the lion's share of such systems.

- Wang represents one of the newer leading edge vendors to the small establishment marketplace. Its primary significance to this marketplace is that it brings the advantages of integrated information systems down to the price level of the small establishments.

T. XEROX

- Annual revenues for Xerox in 1978 totalled $5.9 billion. Of this total, approximately 75% was attributable to the copier product line. The rest of the revenue is derived from the manufacturing of facsimile devices, word processors, various computer peripheral devices, including Shugart diskette drives and Diablo printers, and a DP services business.

- Xerox made two major moves in the communications business in the last year. It announced the company's intention to enter the communications transmission business with an innovative high speed service called XTEN. This service, which could be utilized by much smaller customers than the digital satellite system proposed by SBS earlier, has received some early favorable reaction from the FCC.

- Xerox has also negotiated for the acquisition of Western Union International, an international record carrier which was spun off from the Western Union Telegraph Company in the early 1960s. This acquisition is also awaiting approval from the FCC.

- This combination of concepts and capabilities, along with Xerox' financial resources and field marketing organization, should make Xerox a formidable contender in the U.S. data communications market.

V INDUSTRY ANALYSIS

V INDUSTRY ANALYSIS

A. INTRODUCTION

1. ORGANIZATION

- Section V of the SES Annual Report of 1979 examines in detail the characteristics of particular industries with respect to their usage of information handling equipment and services. In addition to usage, attitudes and plans for the next few years are explored.

- The data for the analysis is derived from over 400 in depth interviews conducted during 1979 with EDP managers, office managers, controllers and other management personnel in the small establishments across the nation. The detailed interview program is defined in Appendix C and the questionnaire used is Appendix E.

- The 12 industries studied in detail are organized into "super groups." Analysis at the industry level is of branches of large corporations versus the independent small establishments. The use of information handling equipment and services differs significantly between branches and independents and it is important to be aware of these factors in considering the small establishment market place.

- The analysis performed at the "super group" level is between different sizes of small establishments. This analysis was used at the "super group" level in order to increase statistical depth.

- The "super groups" and the industries studied within the groups are:

  - Manufacturing Group:

    Process Manufacturing - Food and Kindred Products.
    Discrete Manufacturing - Electrical and Electronic Equipment.

  - Distribution Group:

    Transportation - Freight Forwarding.
    Wholesale Trade - Nondurable Goods.
    Retail Trade - Furniture, Home Furnishings and Equipment Stores.

  - Finance Group:

    Banking - Savings and Loan Associations.
    Finance, Insurance and Real Estate - Insurance Agents, Brokers, and Service.

  - Services Group:

    Utilities - Radio and Television Broadcasting.
    Business Services - Advertising.
    Health Services - Offices of Physicians.

  - Government Group:

    Education Services - School Districts.
    Government - Municipal Governments.

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2. COMPARISIONS

- The three exhibits included in this introduction compare the demographic information that is in each of the industry chapters.

a. Establishment Size

- In Exhibit V-1 the establishments for the groups and industries studied in this report are distributed by the employee size categories that are standard for all SES reports. There is considerable variation of establishment size by industry sector.

  - The smallest category of establishments (1-19 employees) constitutes the majority of all establishments and ranges from about 53% in manufacturing to almost 98% in physicians offices, with the median at 82% and the national average at 88%.

  - Nationally, the medium group (20-99 employees) contains about 10% of the small establishments, but this varies widely in the industries included in this annual report, ranging from 2% in physicians offices to 32% in food manufacturing.

  - Outside of the manufacturing industries the large size (100-499 employees) of small establishments constitute a small portion of the establishments (0.1% to 3.1%). In manufacturing, where costs decrease as productivity increases and increased productivity frequently means large size, the number of establishments with 100-499 employees is about 14%.

EXHIBIT V-1

COMPARISON OF INDUSTRIES BY ESTABLISHMENT SIZE

INDUSTRIES	ESTABLISHMENT SIZE BY EMPLOYEES (PERCENT OF TOTAL)		
	1-19	20-99	100-499
NATIONAL AVERAGE	88.1%	9.9%	1.7%
MANUFACTURING GROUP	53.6	29.8	13.7
FOOD AND KINDRED PRODUCTS	53.8	31.5	13.0
ELECTRIC AND ELECTRONIC PRODUCTS	53.2	26.5	15.2
DISTRIBUTION GROUP	89.5	9.8	.7
FREIGHT FORWARDING	83.1	14.6	2.2
WHOLESALE-NONDURABLES	86.0	13.0	1.0
RETAIL FURNITURE	96.0	4.0	0.1
FINANCE GROUP	94.8	4.7	.5
SAVINGS & LOAN ASSOCIATIONS	81.9	16.6	1.5
INSURANCE SERVICES	96.9	2.7	0.3
SERVICE GROUP	96.3	3.4	0.3
BROADCASTING	70.1	26.7	3.1
ADVERTISING	90.7	8.0	1.1
PHYSICIANS' OFFICES	97.9	1.9	0.1
GOVERNMENT GROUP	NOT APPLICABLE		
SCHOOL DISTRICTS	66.4	31.2	2.2
MUNICIPAL GOVERNMENTS*	81.0*	14.2*	3.9*

* PERCENTAGE OF GOVERNMENTS, NOT ESTABLISHMENTS

b. Employee Distribution

- Employees are distributed much more evenly across establishment sizes than are the number of establishments. While in many cases the establishments (1-19 employees) employ a majority of the people in the industry, this occurs in only 5 of the 12 industries studied.

- Nationally, the employee population is evenly spread over the establishment size categories - about 25% in each of the three size categories of the SES Program. The other 25% of employees are in establishments of 500 employees and over.

- The manufacturing group is an anomaly. The percentage of employees in each establishment size category increases in manufacturing, as the size increases. In most other industries the employee percentage decreases as the size of the establishment increases.

- The ranges and median for the size categories are (from Exhibit V-2):

  - 1-19 Employees

    Range 2.8% to 78.9%.
    Median 37%.

  - 20-99 Employees

    Range 10.2% to 54.6%.
    Median 30%.

  - 100-499 Employees

    Range 4.0% to 44.1%.
    Median 17%.

EXHIBIT V-2

COMPARISON OF INDUSTRIES BY NUMBER OF EMPLOYEES

INDUSTRIES	ESTABLISHMENT SIZE BY EMPLOYEES (PERCENT OF TOTAL)		
	1-19	20-99	100-499
NATIONAL AVERAGE	26.9%	27.3%	23.0%
MANUFACTURING GROUP	4.9	17.0	35.2
FOOD AND KINDRED PRODUCTS	6.5	24.3	44.1
ELECTRIC AND ELECTRONIC PRODUCTS	2.8	10.2	27.1
DISTRIBUTION GROUP	47.4	37.9	14.7
FREIGHT FORWARDING	33.4	39.0	23.2
WHOLESALE-NONDURABLES	39.0	41.0	17.0
RETAIL FURNITURE	74.0	22.0	4.0
FINANCE GROUP	54.2	27.7	14.1
SAVINGS & LOAN ASSOCIATIONS	36.9	43.0	17.9
INSURANCE SERVICES	62.4	20.4	12.2
SERVICE GROUP	64.7	21.2	8.9
BROADCASTING	27.5	40.6	20.6
ADVERTISING	38.9	28.3	19.9
PHYSICIANS' OFFICES	78.9	14.6	4.0
GOVERNMENT GROUP	NOT AVAILABLE		
SCHOOL DISTRICTS	23.0	54.6	17.1
MUNICIPAL GOVERNMENTS*	NOT AVAILABLE		

* PERCENT OF EMPLOYEES IN GOVERNMENT, NOT ESTABLISHMENTS

c. Employees/Establishment

- Exhibit V-3, showing the average number of employees per establishment, can be useful when combined with expenditures information, such as that in Exhibit V-4, to determine the amount of money being spent on the subject under study by each firm. This can be used as an initial prospect potential criterion in the small establishment marketplace.

- The summary numbers for employees/establishment are (from Exhibit V-3):

	Range	Median
1-19 Employees	3.2 - 14.0	6
20-99 Employees	34.6 - 70.7	39
100-499 Employees	152.0 - 315.0	180
Overall	4.6 - 128.1	14

d. Expenditures/Employee

- The data for Exhibit V-4 is based upon the data in the 1978 SES Annual Report and was updated where new information was available, then made as specific as possible to the industries under study in 1979. The methodology is explained in Appendix D.

- The average amounts spent annually per employee for:

  - Computer equipment and services $203

  - Office equipment $167

  - Communication equipment and services $420

  The communications dollars include telephone expense as the largest component.

EXHIBIT V-3

COMPARISON OF INDUSTRIES BY EMPLOYEES/ESTABLISHMENT

INDUSTRIES	ESTABLISHMENT SIZE BY EMPLOYEES (AVERAGE NUMBER OF EMPLOYEES)			
	1-19	20-99	100-499	OVERALL
NATIONAL AVERAGE	4.6	41.6	200.8	15.1
MANUFACTURING GROUP	7.2	48.0	216.3	84.2
FOOD AND KINDRED PRODUCTS	7.4	47.4	208.7	61.4
ELECTRIC AND ELECTRONIC PRODUCTS	6.7	49.6	228.8	128.1
DISTRIBUTION GROUP	5.3	38.6	206.0	10.0
FREIGHT FORWARDING	6.0	39.0	152.0	14.6
WHOLESALE-NONDURABLES	6.0	39.0	212.0	12.5
RETAIL FURNITURE	5.0	35.0	157.0	6.1
FINANCE GROUP	3.7	38.0	187.7	6.4
SAVINGS AND LOAN ASSOCIATIONS	7.0	38.0	177.0	14.8
INSURANCE SERVICES	3.2	37.5	197.2	5.0
SERVICE GROUP	4.0	36.9	176.9	5.9
BROADCASTING	10.0	39.0	172.0	25.7
ADVERTISING	4.9	40.3	200.9	11.4
PHYSICIANS' OFFICES	3.7	34.6	169.3	4.6
GOVERNMENT GROUP	NOT AVAILABLE			
SCHOOL DISTRICTS	14.0	70.7	315.0	113.5*
MUNICIPAL GOVERNMENT*	NOT AVAILABLE			

* NUMBERS REFER TO EMPLOYEES/GOVERNMENT NOT PER ESTABLISHMENT

EXHIBIT V-4

AVERAGE ANNUAL EXPENDITURES PER EMPLOYEE FOR INFORMATION HANDLING EQUIPMENT AND SERVICES

INDUSTRY	EDP EQUIPMENT, SERVICES AND SUPPLIES	OFFICE EQUIPMENT	COMMUNI-CATIONS EQUIPMENT AND SERVICES
DISCRETE MANUFACTURING	$ 268	$ 186	$ 460
PROCESS MANUFACTURING	238	209	509
TRANSPORTATION	182	155	389
WHOLESALE	163	138	348
RETAIL	128	109	275
BANKING AND FINANCE	505	429	1,077
INSURANCE	265	226	565
UTILITIES	305	260	651
OFFICES OF PHYSICIANS	62	53	244
OTHER HEALTH SERVICES	177	150	378
EDUCATION	193	164	414
STATE & LOCAL GOVERNMENT	187	158	398
ACCOUNTING	285	242	609

3. RESPONDENT SUMMARIES

- Over 470 interviews were conducted for INPUT's 1979 SES Annual Report in 12 industry sectors. These included 203 branches of large corporations and 269 independent establishments. Distributed by the SES Small Establishment Program size categories, the interview program included:

1-19 employees	149 establishments
20-99 employees	167 establishments
100-499 employees	156 establishments

a. Data Processing Equipment And Services Usage

- Grouping all respondent establishments together, 79% used computers in some fashion and 21% do not use computers at all.

- Of those 79% of the establishments that use computers (some of them in more than one way):

  - 54% have their own system on their premises.

  - 29% use a system located at another location within the company, usually at the corporate headquarters computer center.

  - 30% use an outside computer service vendor.

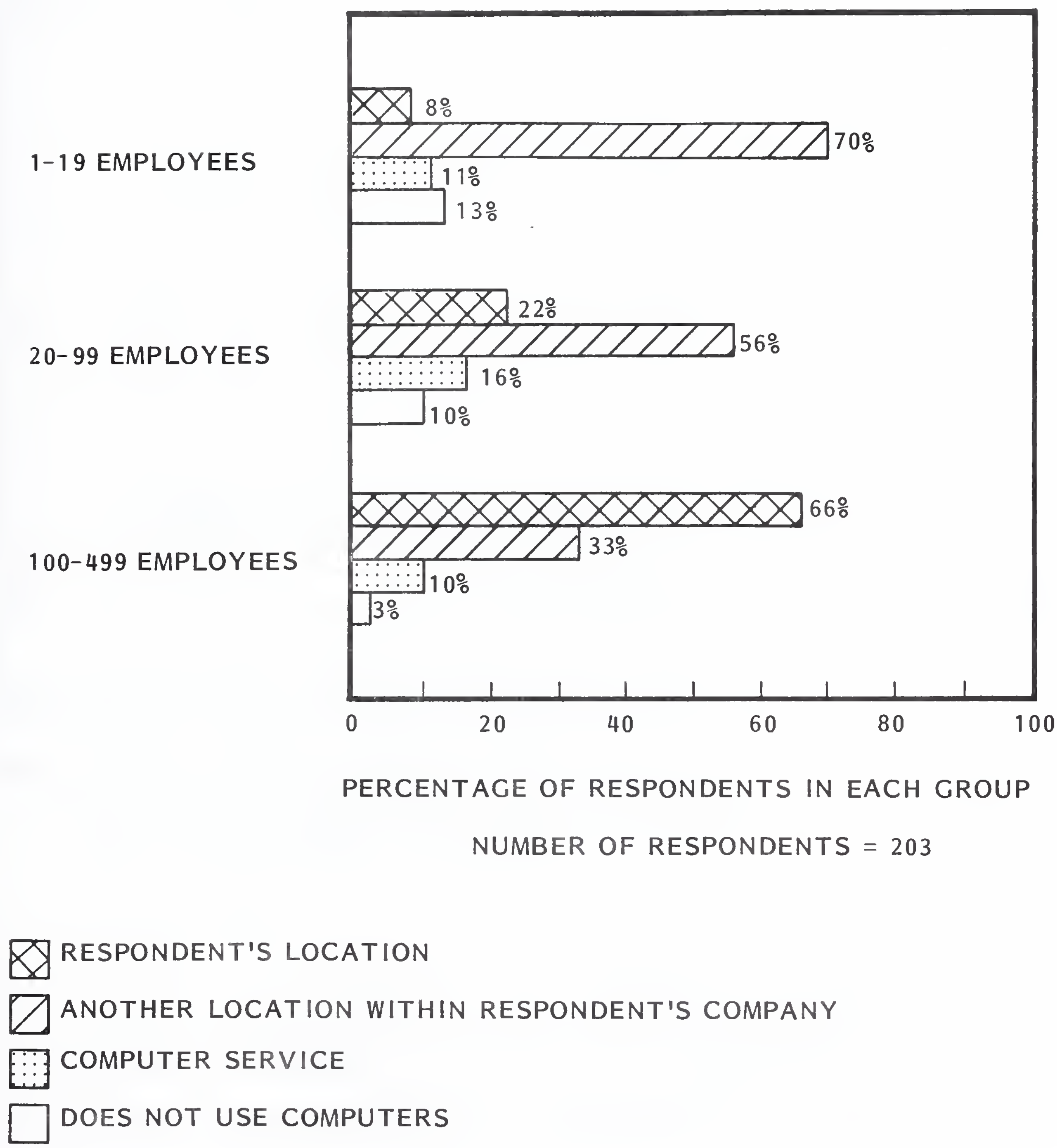
  - 13% use computers in at least two of the ways mentioned above.

- Separating the data by the size of the establishment the trend toward having an in-house system as the establisment grows in employee size becomes apparent (Exhibit V-5 - Branches, Exhibit V-6 - Independents).

- Involvement with computers also increases with size, slightly with the branches (87%-97%) and much more heavily with the independents (37%-92%).

EXHIBIT V-5

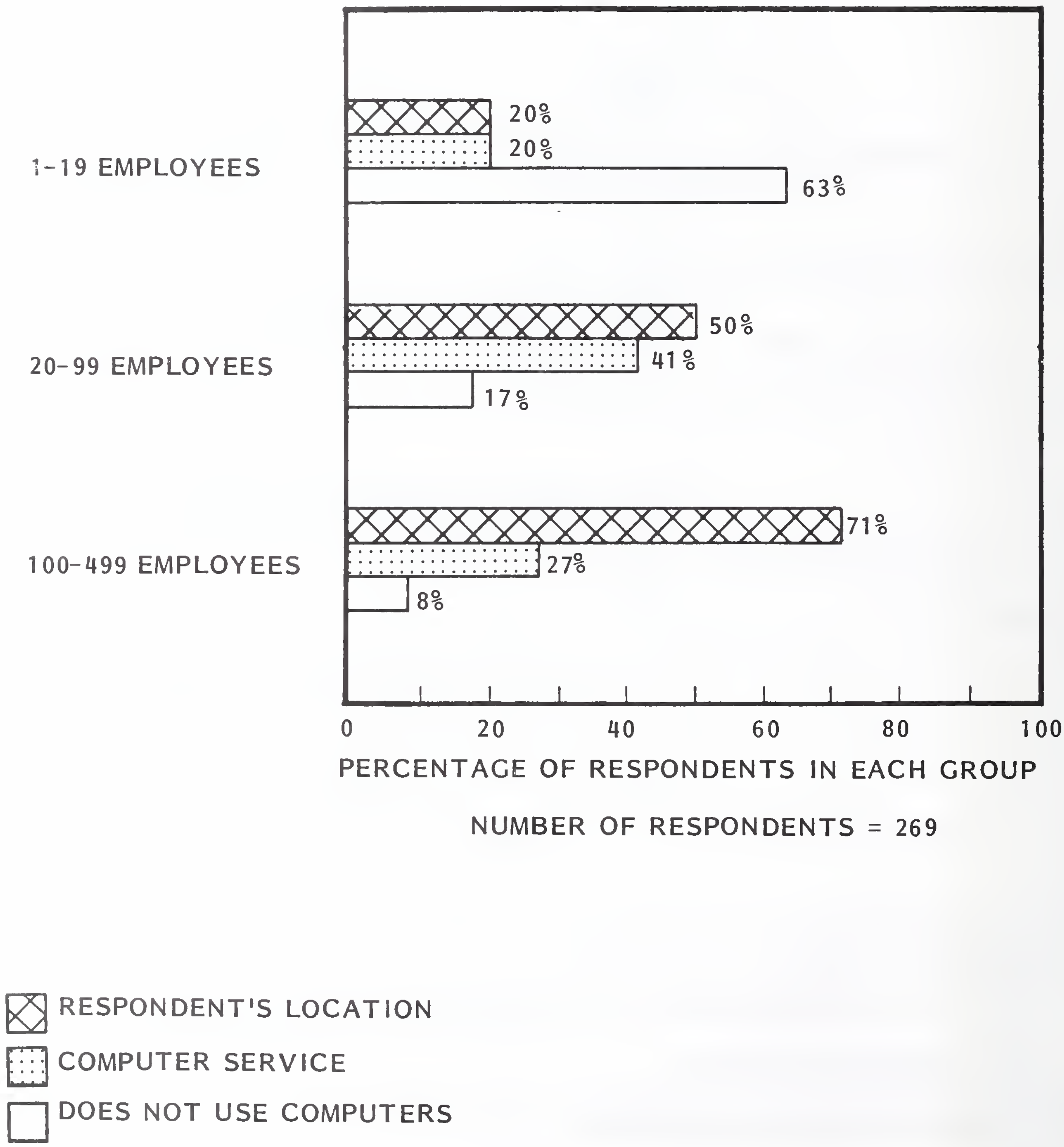
LOCATION OF COMPUTERS OR COMPUTER SERVICES USED BY RESPONDENTS-BRANCHES



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

EXHIBIT V-6

LOCATION OF COMPUTERS OR COMPUTER SERVICES
USED BY RESPONDENTS-INDEPENDENTS



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

The use of computer services from the home office by branches decreases steadily as size increases.

- Outside computer service vendors are most heavily used by the medium size branch and independent establishments.

- The independents obtain an in-house system at a smaller size than the branches because they do not have an inexpensive source of computing power that those branches have at the parent company computer center.

- Regrouping the data by branches and independents shows that currently 92% of the branches use computers, while only 70% of the independents do so. About half of the branches, however, use the corporate computer center. This may not be their only computer usage, but since only 5% double up in their use of computers, the corporate center is the major source of branch computing power (Exhibit V-7).

- Since branches have this additional means of automating, their utilization of outside services is lower than the independent establishments who have only two choices: in-house system or outside computer service vendor.

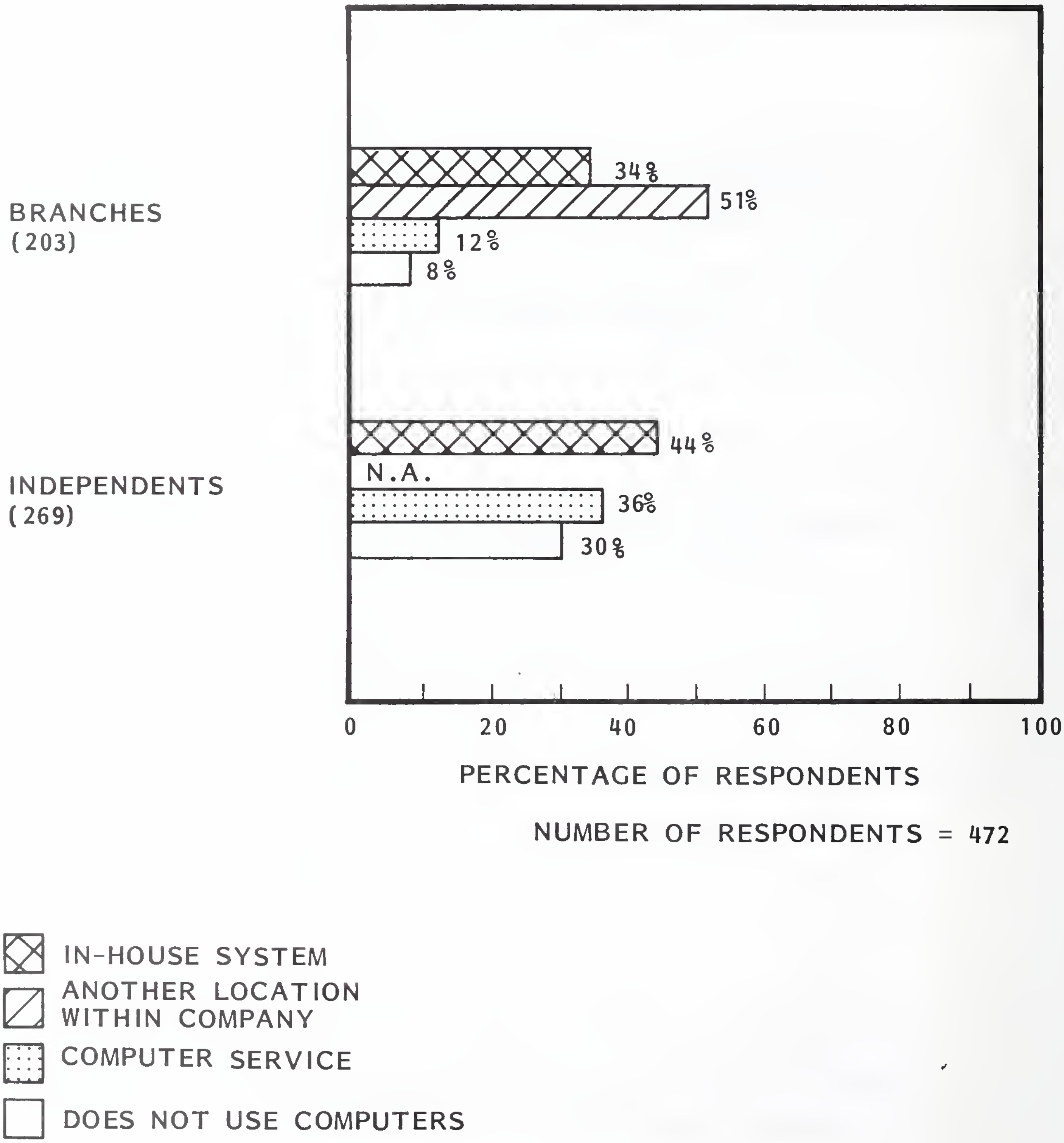
- By 1984 this picture will not change very much - 95% of the branches will be using computers - a 6% increase, and 75% of the independents will be doing so - a 7% increase.

- It is also worth noting that by 1984 7% of the branches will be using several sources of computer power. Therefore, the 32% increase in in-house computers will not be completely at the expenses of the two service areas (Exhibit V-8).

- During this period, the independent establishments will maintain the 10% level of using two sources of computer power. In-house computer installations will grow 16% during the coming five years, but the use of service will fall only 6% during this same period.

EXHIBIT V-7

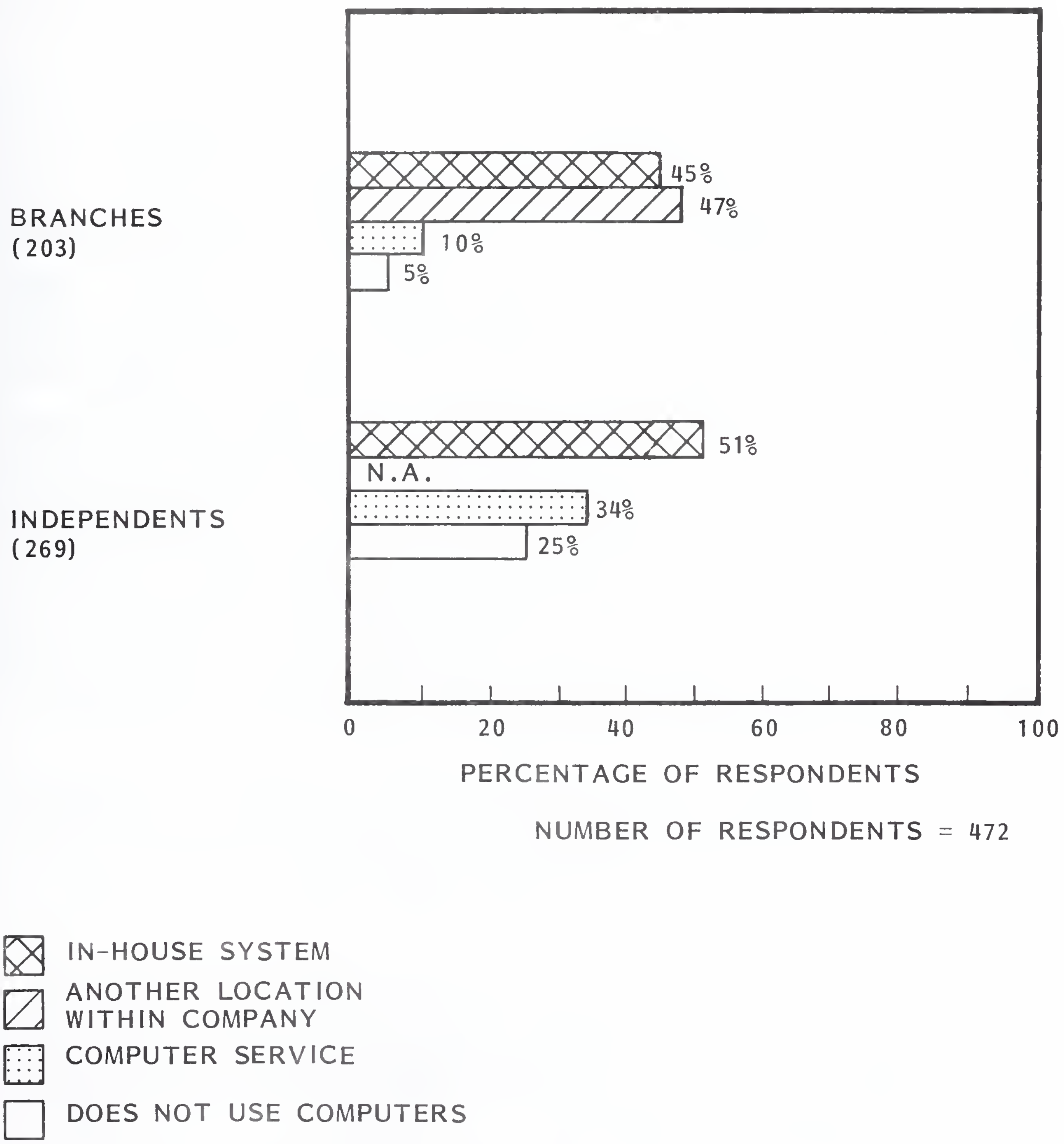
LOCATION OF COMPUTERS OR COMPUTER SERVICES
BY BRANCHES VERSUS INDEPENDENTS
(1979)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

EXHIBIT V-8

LOCATION OF COMPUTERS OR COMPUTER SERVICES
BY BRANCHES VERSUS INDEPENDENTS
(1984)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

- As these establishments acquire computer equipment, the general tendency will be to purchase the system, especially if the establishment is independent and not of the smallest size. As shown in Exhibit V-9, renting is only significant in the 1-19 employee size independent establishment group (where 26% of this group rents systems). Purchase attracts the largest proportion of respondents, even at the small end of the SES range, but not a majority as is true in the medium and large groups. Rental is used in the medium and small groups for equipment that is expected to be upgraded soon or whose expected MTBF is comparatively short.

- Overall, 40% of the independents write their own programs and this percentage increases as the establishment size increases. While 48% use standard or modified standard programs, the use of standard programs decreases from 40% to 25%, as establishment size increases. Even at 25% this represents a substantial market for packaged programs (see Exhibit V-10). Many small companies use packaged programs. These are the establishments for whom the newer \$5,000 - \$15,000 business systems are designed.

- Outside service vendor usage is expected to remain fairly constant among the small independent establishments during the next five years. Currently, the respondents indicated that as the volume of data increased or as the establishment size increased, they changed from transaction or interactive processing to batch processing using batch terminals for sending and receiving data or they opted for physical delivery (mail or courier) of the data.

    - Physical delivery is the way for the majority of respondents in the medium and large independent establishments, as shown in Exhibit V-11. This shows that the major competition for the carriers is still mail and courier.

- Payment for computer services can become a complex problem because there are many ways that users pay for the services and many users pay in more than one way. No positive relationship appears to exist between the data in Exhibit V-11 and that in Exhibit V-12.

EXHIBIT V-9

PRESENT TERMS OF ACQUIRING COMPUTER EQUIPMENT-INDEPENDENTS

METHOD	ESTABLISHMENT SIZE BY EMPLOYEES		
	100 TO 499	20 TO 99	1 TO 19
RENT	4%	5%	26%
LEASE	44	43	32
PURCHASE	60	62	47

NUMBER OF RESPONDENTS = 108

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TERMS

EXHIBIT V-10

METHODS OF OBTAINING COMPUTER PROGRAMS - INDEPENDENTS

METHOD	ESTABLISHMENT SIZE BY EMPLOYEES		
	100 TO 499	20 TO 99	1 TO 19
USE STANDARD PROGRAMS	25%	29%	40%
MODIFY STANDARD PROGRAMS	17	24	10
WRITTEN BY A SOFTWARE HOUSE	21	16	30
WRITE THEIR OWN	47	37	20

NUMBER OF RESPONDENTS = 112

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE METHODS

EXHIBIT V-11

METHODS RESPONDENTS USE TO SEND AND RECEIVE DATA-INDEPENDENTS

METHOD	ESTABLISHMENT SIZE BY EMPLOYEES		
	100 TO 499	20 TO 99	1 TO 19
INTERACTIVE COMMUNICATIONS	15%	27%	38%
BATCH COMMUNICATIONS	30	11	8
PHYSICAL DELIVERY	63	62	46
BY VOICE (PHONE)	4	11	15

NUMBER OF RESPONDENTS = 85

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE METHODS

EXHIBIT V-12

METHODS USED TO PAY FOR COMPUTER SERVICES - INDEPENDENTS

METHOD	ESTABLISHMENT SIZE BY EMPLOYEES		
	100 TO 499	20 TO 99	1 TO 19
BY TRANSACTION	47%	57%	62%
BY TIME	13	12	4
FLAT MONTHLY RATE	37	38	46
OTHER	3	5	8

NUMBER OF RESPONDENTS = 98

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE METHODS

- Payment by time varies inversely with interactive use but directly with batch use.

- Payment by transaction by flat monthly rate, and by a combination of the two, varies directly with interactive use but such use encompasses much less volume. When interactive use is at the 15% to 40% level, payment by transaction is at the 45% to 55% level and a flat monthly payment is at the 35% to 45% response level.

- The small independent establishments that currently have computer systems installed will continue to be active in changing their equipment to meet their needs during the coming five years.

  - Seventy-two percent are planning some changes to their system.

  - Twenty-four percent are planning to replace their current system with a new one.

  - Forty-three percent will add equipment to handle the new applications they are planning.

- Exhibit V-13 brings out these facts by establishment size and shows that the primary activity will be in the medium and larger size groups.

  - Plans to modify the current computer system include memory and printers. Display terminals were mentioned but not as frequently as the first two items.

- When these respondents go to buy equipment, the reputation of the vendor will be of primary importance. On an overall rating basis, that factor achieved 77% of the maximum rating by the independents.

EXHIBIT V-13

PLANS TO CHANGE OR MODIFY CURRENT COMPUTER SYSTEM DURING THE NEXT TWO YEARS - INDEPENDENTS

PLANNED CHANGES	ESTABLISHMENT SIZE BY EMPLOYEES		
	100 TO 499	20 TO 99	1 TO 19
NO CHANGE	23%	33%	40%
ADD A COMPUTER	2	5	0
MODIFY PRESENT COMPUTER	50	36	40
REPLACE PRESENT COMPUTER WITH NEW COMPUTER	25	24	20
REPLACE PRESENT COMPUTER WITH A COMPUTER SERVICE	4	2	0

NUMBER OF RESPONDENTS = 95

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO MULTIPLE CHANGES BEING PLANNED

- Compatibility with larger systems achieved the same rating by the independents, but as Exhibit V-14 shows, compatibility wasn't universally high in all independent size categories as was vendor reputation.

- The small independents felt the delivery schedule, vendor support, and available software were all important. As size increased to where more respondents wrote their own programs and had more experience with their own systems:

  - Vendor support and available software decreased in importance.

  - Hardware availability and system compatibility became more significant factors.

  - Vendor reputation remained consistently important.

- The independent establishments studied for this report are automated at the 44% level, and this level will increase during the next five years. In addition, those with systems are planning to upgrade the equipment complement in numerous ways. They are not opposed to using standardized programs. Computer service usage will turn over somewhat with some current service users getting their own system and new establishments becoming service users.

b. <u>Communications Equipment And Services Usage</u>

- In general, branches, by the nature of their organization have need to communicate with other organizations. They use more services than the independents There is one area of communications usage where the independents seem to have more freedom to chose their moves than do the branches. That area is the use of interconnect equipment (Exhibit V-15). Branches are usually involved in a corporate communications system and tend to think less in terms of private equipment. Independents see interconnect equipment as a cost saving item in a high expense area.

EXHIBIT V-14

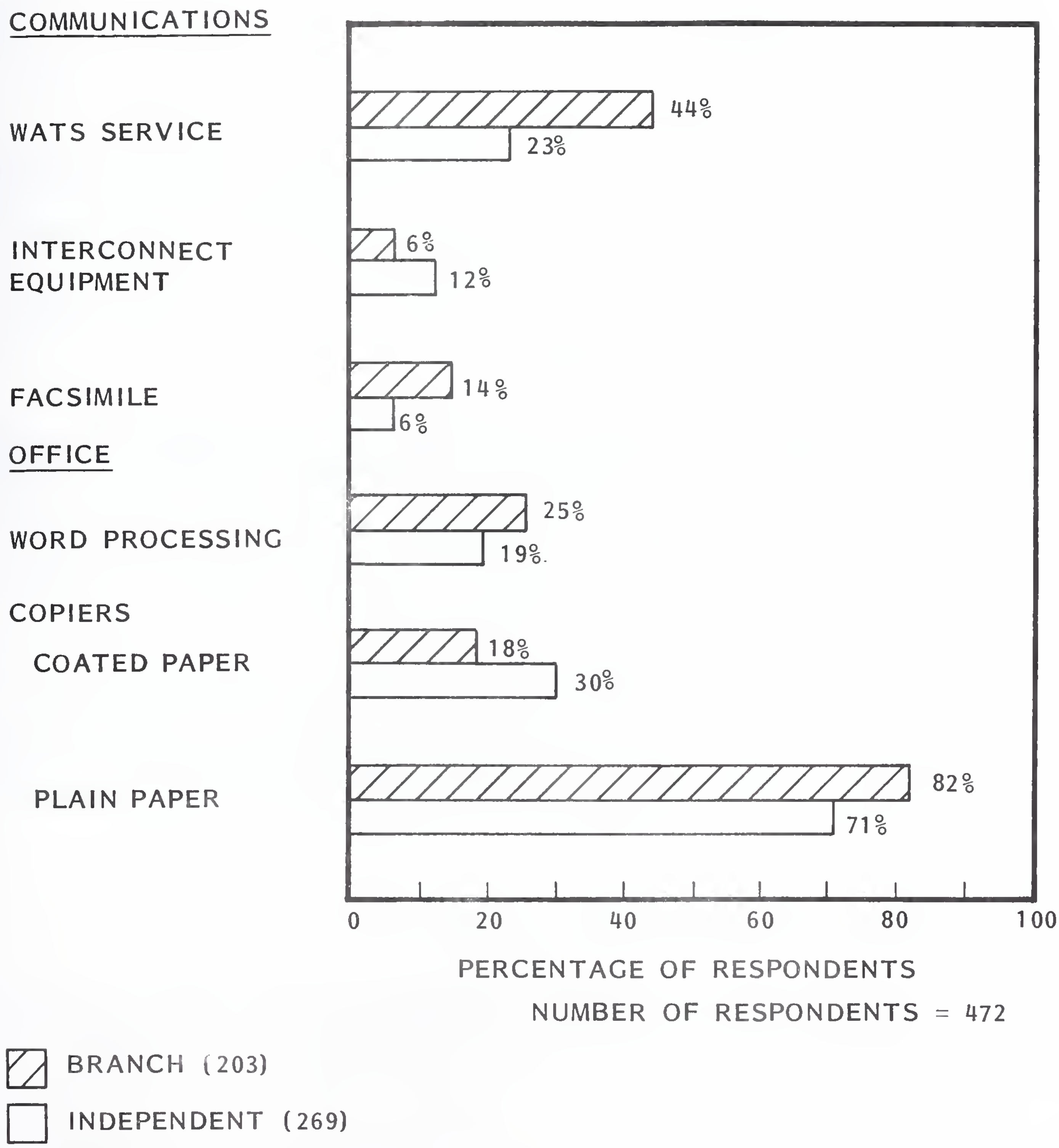
IMPORTANCE OF FACTORS IN CHOOSING
COMPUTERS - INDEPENDENTS

FACTORS	ESTABLISHMENT SIZE BY EMPLOYEES		
	100 TO 499	20 TO 99	1 TO 19
SUPPORT	1.9	2.1	2.3
AVAILABLE SOFTWARE	1.6	1.9	2.3
DELIVERY SCHEDULE	2.1	2.1	2.5
VENDOR REPUTATION	2.4	2.3	2.5
AVAILABLE HARDWARE	2.2	2.1	1.9
COMPATIBILITY WITH LARGER SYSTEMS	2.4	2.3	1.8

RATINGS: VERY IMPORTANT = 3
SOMEWHAT IMPORTANT = 2
SLIGHTLY IMPORTANT = 1
UNIMPORTANT = 0

EXHIBIT V-15

USE OF COMMUNICATIONS AND OFFICE EQUIPMENT AND SERVICES - BRANCHES VERSUS INDEPENDENTS



- The use of interconnect equipment by the independents increases with establishment size, from 8% in the small group to 15% in the large group (Exhibit V-16). The heaviest users of interconnect equipment are the independent freight forwarders (26%) and independent advertising agencies (30%).

- WATS service is a cost saving service that is used by almost 50% of the branches but by not even 25% of the independents. The branches have traffic to other branches and to the home office, all of whom are most likely beyond a reasonable local area. The independents usually deal in a more localized area and cannot justify the WATS service. Overall WATS service is used by 32% of the respondents.

- Facsimile equipment is not used by many respondents (overall 9%), but it is used by branches twice as frequently as by the independents. Use of facsimile equipment is very industry dependent. The heaviest usage is in freight forwarding, broadcasting, and advertising.

c. Office Equipment Usage

- For purposes of presenting summary statistics, on Exhibit V-15 word processing includes memory typewriters, single station word processors and shared logic word processors. The total usage of these systems came to 21% of the sample with 25% of the branches involved as opposed to 19% of the independents.

- In addition to typewriters, copiers were also almost universally used. Both branches and independents preferred plain paper copiers: 76% of the respondents using them and 25% using coated paper machines. Many respondents had both types on their premises.

d. Basis For Budgeting

- The majority of the independent respondents prefer to budget for information handling equipment and services on an individual item by item basis:

EXHIBIT V-16

SOURCES OF TELEPHONE EQUIPMENT - INDEPENDENTS

SOURCE OF TELEPHONE EQUIPMENT	ESTABLISHMENT SIZE BY EMPLOYEES		
	100 TO 499	20 TO 99	1 TO 19
TELCO'S	85%	87%	93%
INTERCONNECT	15	13	8

NUMBER OF RESPONDENTS = 261

- This majority decreases with establishment size, but it still remains a majority in the large size category.

- Part of the decreasing majority is absorbed by respondents using the precent of revenue method of budgeting (Exhibit V-17).

• Budgeting on an individual basis generally implies that a budgetary line item exists for specific equipment, especially for large or extraordinary expenditures. The implications for equipment or services sales people are both good and bad.

  - If there is a line item in the budget for particular equipment or services, the selling must be done prior to the budget finalization. If this time slot is missed the opporunity might not be available until the next budget period - six months to a year away.

  - If there is a line item in the budget for specific equipment and services it ususally means the purchase doesn't have to be rejustified at the time of purchase. After the money is budgeted there is no committee that has to select equipment. A line item usually means the justification and selection have already been accomplished.

EXHIBIT V-17

BASIS FOR BUDGETING FOR INFORMATION HANDLING EQUIPMENT AND SERVICES - INDEPENDENTS

BASIS FOR BUDGETING	ESTABLISHMENT SIZE BY EMPLOYEES		
	100 TO 499	20 TO 99	1 to 19
PERCENT OF REVENUE	15%	13%	8%
LAST YEAR'S CONSUMABLE COSTS	15	17	5
HANDLE ON AN INDIVIDUAL BASIS	58	67	82
OTHER	14	3	7

NUMBER OF RESPONDENTS = 202

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE METHODS

B. MANUFACTURING GROUP

I. ANALYSIS BY ESTABLISHMENT SIZE

a. Demographics

- This group includes selected industries from the process and discrete manufacturing sectors - food and kindred products and electrical and electronic equipment. All manufacturing employs 19 million people in 311,000 establishments. The selected industries employ 16% of the people working in 12% of the establishments. Comparing these two industries to all of manufacturing by establishment size:

Percent of Establishments

Establishment Size	All Manufacturing	SES Manufacturing Group
1-19 Employees	64.3	53.6
20-99 Employees	24.4	29.8
100-499 Employees	9.4	13.7

Percent of Employees

Establishment Size	All Manufacturing	SES Manufacturing Group
1-19 Employees	6.9	4.9
20-99 Employees	18.5	17.0
100-499 Employees	32.9	35.2

Employees/Establishment

Establishment Size	All Manufacturing	SES Manufacturing Group
1-19 Employees	6.6	7.2
20-99 Employees	46.4	48.0
100-499 Employees	213.5	216.3

The numbers do not significantly differ except for the 1-19 employees/establishment, where the SES group is substantially lower. This will adversely affect the amount of money that will be available for information handling equipment and services in the group studied compared with that available in manufacturing in general.

b. Computer Equipment And Services Usage

(1) Computers And Services

- Substantial numbers of on-site systems only appear in the large size establishments for both branches and independents.

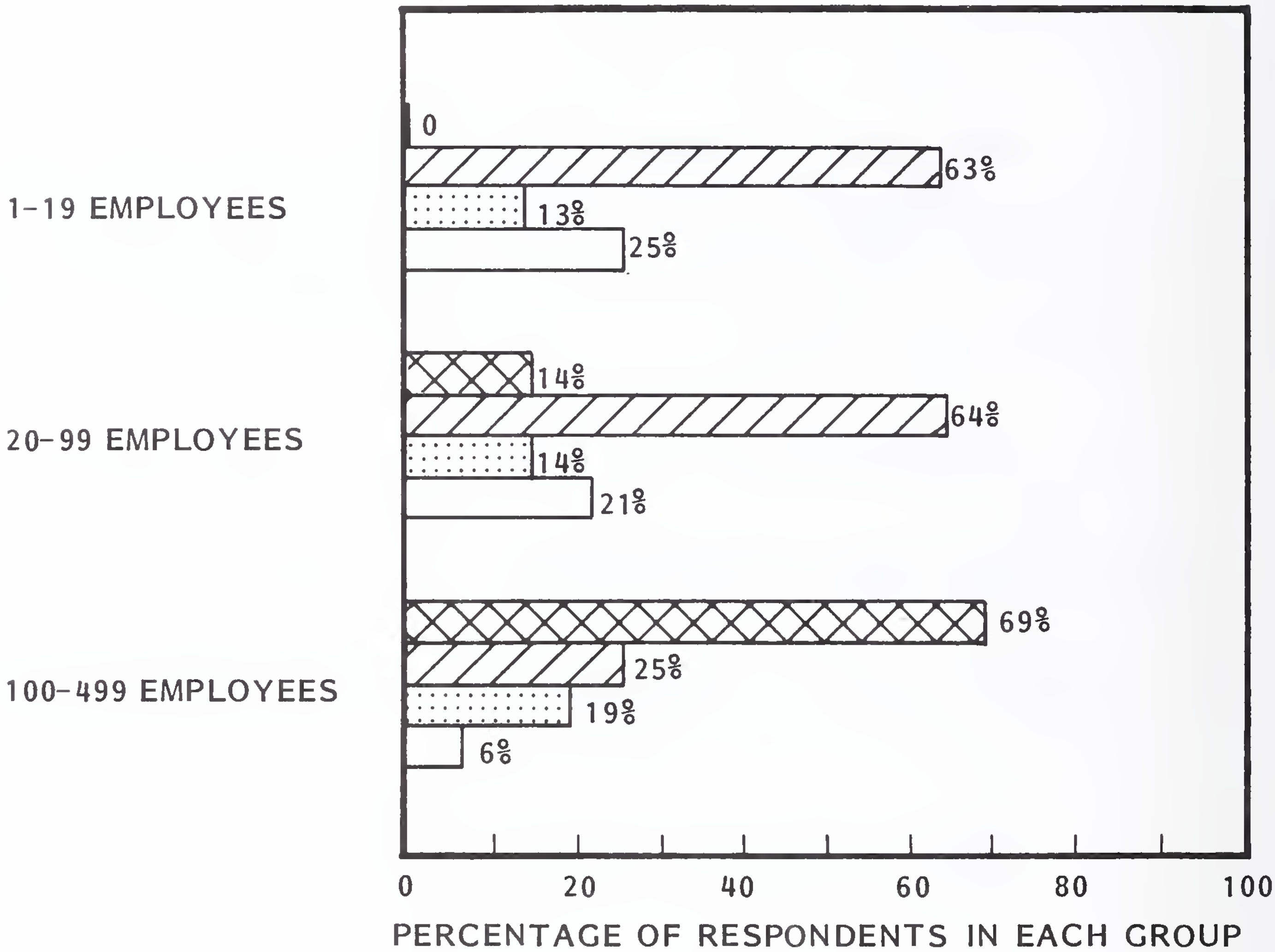
  - Small and medium size branches are very dependent upon corporate computing power (Exhibit V-18).

  - The small independent establishments do without the benefits of computers. Medium size independents either use outside service organizations or have their own system (Exhibit V-19).

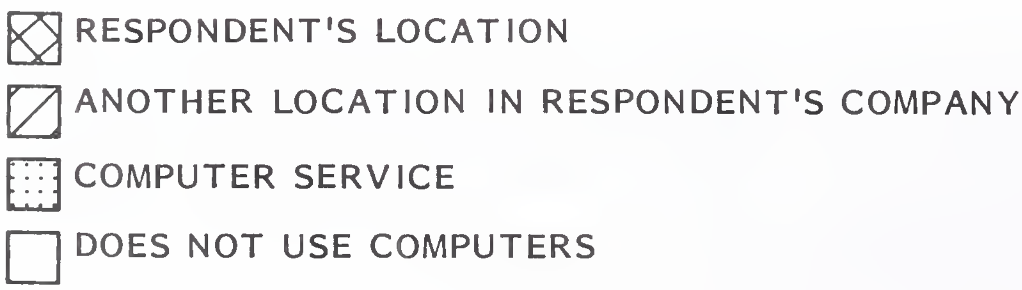
- The (1-19 employee) size establishments feel that DP is too costly for them, especially in light of the seasonal nature of the process industry's workload. They did say that if they were to automate, emphasis would be placed upon bookkeeping and inventory control.

EXHIBIT V-18

MANUFACTURING GROUP - LOCATION OF COMPUTERS OR COMPUTER SERVICES USED BY RESPONDENTS - BRANCHES



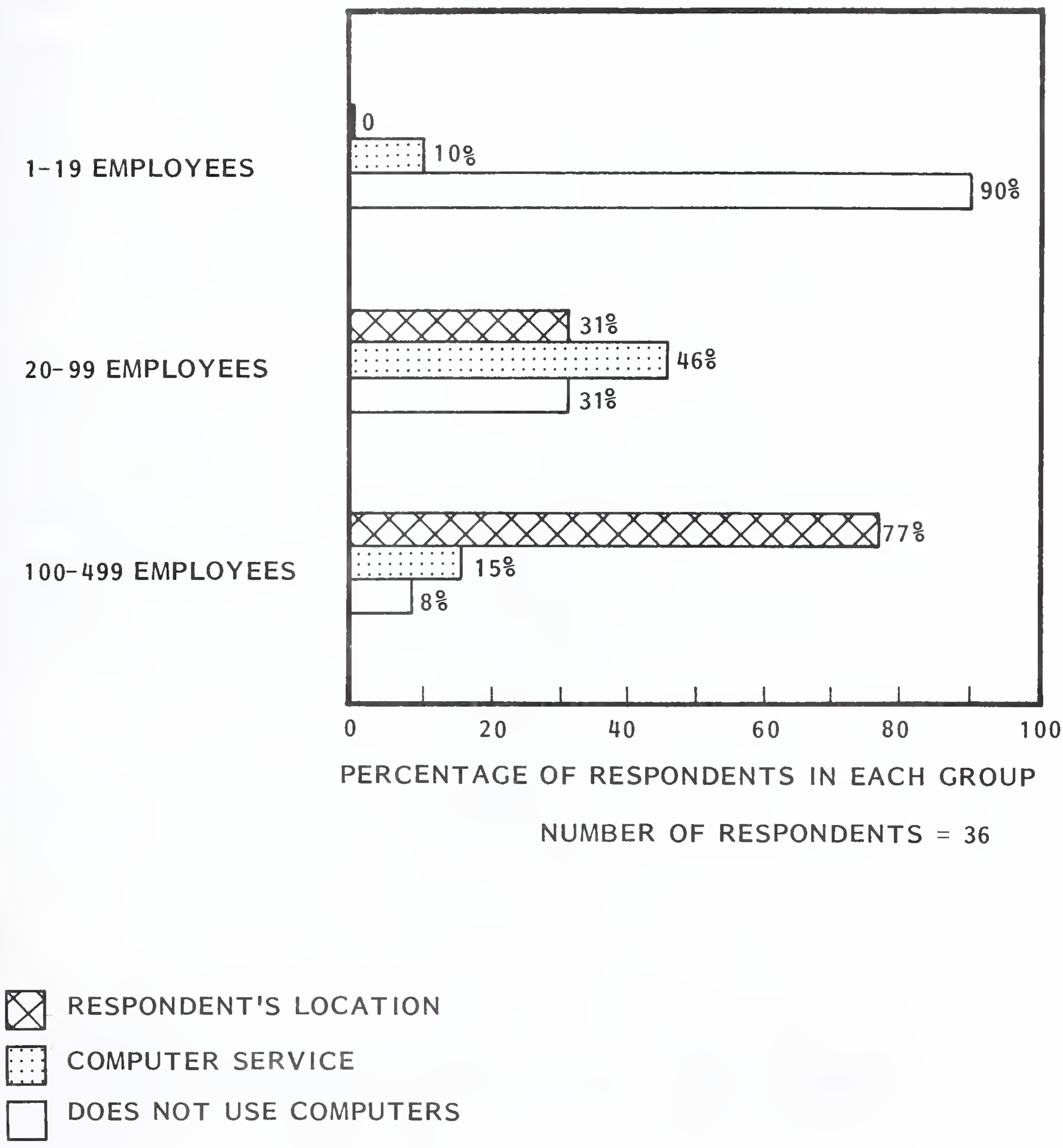
NUMBER OF RESPONDENTS = 38



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

EXHIBIT V-19

MANUFACTURING GROUP - LOCATION OF COMPUTERS OR COMPUTER SERVICES USED BY RESPONDENTS - INDEPENDENTS



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

- The large establishments are automated at over the 90% level.

- Even with the high use of service by the group, 67% use the mails or delivery service to send and receive data. The highest use of automated methods occurs in the smallest establishments with 43% using batch terminals. Interactive terminal usage declines as the establishments grow larger.

- The heavy utilization of computer services suggest there is an element in the industry that does not want to be bothered with the details of running their own shop - "here are parameters, please do the job". This trend is followed by the 20% usage of standardized programs. Again; "please do the job, or just sell me a program that will do the job - I don't want to know the problems" - seems to be a prevalent attitude in the small manufacturing establishments. The small group (1-19 employees) uses standard programs exclusively, and as the size increases the use of standard program decreases.

- The larger group (100-499 employees), having the most experience with computers has come to realize that writing its own programs cannot always be cost justified and frequently there are better ways of getting the job done. The medium size group (20-99 employees) has 44% of the respondents writing their own programs, the largest percentage in the manufacturing group. They do not modify standard programs and again seem to be in a transition state; they appear to be more flexible than the small size group but do not make as efficient use of the available resources as the large group does.

- Since 72% of the large size establishments have their own in-house system, they would be expected to show the greatest variety in acquiring systems. The large size group shows a slight preference for purchasing, the medium size group shows a big preference for purchasing and the small size group only leases. Rental plans are only favored by a few of the large size establishments. Most of the renting respondents are branches of large corporations. One renting respondent claims the company is very conservative and makes changes very slowly. No equipment changes are planned by this establishment over the next two years. Another renting respondent is only renting the CPU

and purchases the rest of his equipment. This establishment has an IBM 4300 with six CRTs on order and expects them in two years.

- Overall, 50% of the manufacturing group that has in-house systems lease them, 41% own the system, and 9% rent them.

- The situation in paying for computer services is somewhat more complicated than paying for equipment. The interactive service users generally pay by connect time plus the amount of data stored and CPU time. Batch users pay by transaction plus a flat rate as do those that receive the information by mail or courier. A flat rate was always part of the payment. Usually they paid by transaction also. The branches budgeted or were assessed a portion of the total corporate DP bill usually as a function of their usage. Occasionally the branches didn't pay at all, to the best of their knowledge, for the corporate computer service.

- In the manufacturing group there are opportunities for service vendors, due to the seasonal nature of the work, especially in process manufacturing. The establishments do not want to invest in equipment or programming. In general, service companies have a good reputation in this industry. As the larger establishments put an increasing amount of production scheduling and planning on a computer system they will want to either obtain their own system or be on-line to the service company.

- This industry is open to standard programming packages and use software houses to do custom programming. Opportunities lie not only in selling packages to the end users directly but the service vendors should be approached also.

(2) Communications Equipment

- The use of interconnect equipment at the 14% level by the independent establishments is about average for the groups studied (Exhibit V-20).

EXHIBIT V-20

MANUFACTURING GROUP - SOURCES OF TELEPHONE EQUIPMENT - INDEPENDENTS

SOURCE OF TELEPHONE EQUIPMENT	PERCENTAGE OF INDEPENDENT ESTABLISHMENT RESPONDENTS
BELL OPERATING COMPANIES	60%
OTHER TELEPHONE SERVICE COMPANIES	26
COMMUNICATIONS EQUIPMENT SUPPLIERS NOT SELLING CARRIER SERVICE	14

NUMBER OF RESPONDENTS = 35

- The process manufacturing establishments are Bell keyset oriented, independent of establishment size or organizational structure. They are beginning to become aware of other equipment possibilities but few have done anything about it.

- Discrete manufacturing is well aware of the changes in the voice communications marketplace and many have made changes recently. The medium size establishments (20-99 employees) are keyset oriented but have bought some private equipment as have the large establishments who are PABX oriented. The small size group claims to have antiquated equipment. Some find it is working well while most claim to be getting ready to do something in this area.

- The small independent establishments (1-19 employees) make very little use of any communications services outside of the standard telephone service. Branch establishments of all sizes are using "in" and "out" WATS lines and TWX/Telex services. TWX/Telex services are either part of the corporate system or used for a particular purpose - "a line to Scotland." The branches versus independent comparison is more instructive than the division by establishment size.

  - Independent establishments use WATS lines and TWX/Telex, 19% and 17% respectively.

  - Branches use WATS line and TWX/Telex services, 45% and 37% respectively.

(3) Office Equipment Usage

- The use of advanced office equipment among the small manufacturing (1-19 employees) establishments is fairly uniform - they do not use any, except for copiers. Two memory typewriters are in use, one in a small establishment (1-19 employees) and one in a medium size establishment (20-99 employees). Even copiers are not universally used - one respondent has, "no need for one."

- When asking about office equipment most respondents in this group answered with information concerning their copiers. For most it is the biggest single office equipment expense they have. Their copier requirements are few - basically quality is most important, with the other features shown in Exhibit V-21 being relatively unimportant in comparison. Of the other features desired, small size was the most desired, with quietness and multiple paper sizes also mentioned. One respondent would like to use his copier as an in-house printer.

- The smaller establishments (1-19 employees) have few copier requirements and seem not to have much of a copying load. The larger establishments (100-499 employees) have a heavy paperwork load. Speed and versatility are their main requirements. Ideally, they would like, books, blueprints, "D" size drawings and standard paper to be able to be copied on a single machine.

c. <u>Needs And Plans For Improvement</u>

(1) EDP

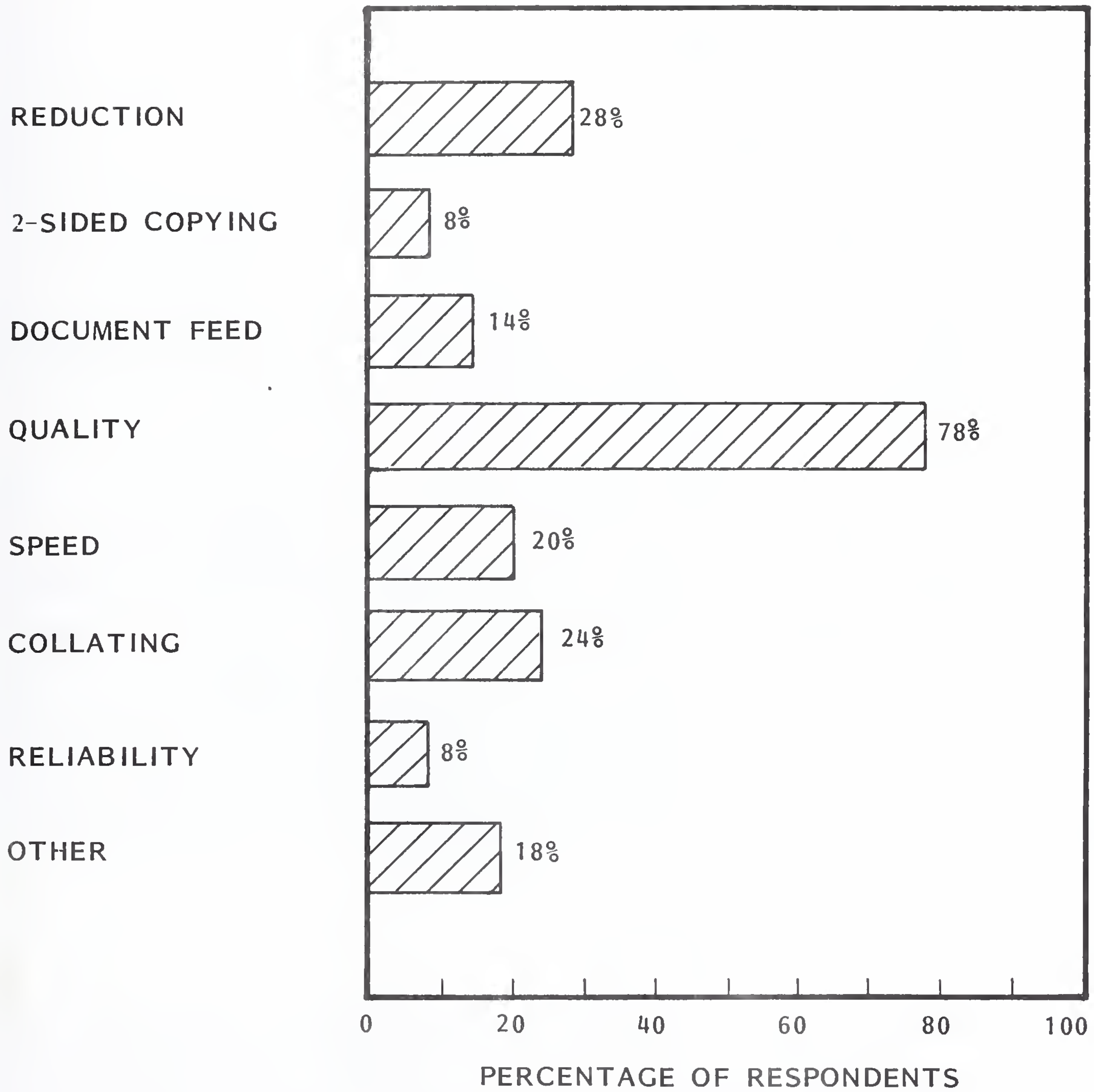
- The medium size establishments (20-99 employees) are planning to obtain terminals during the coming five years so that they can get better service from their computer services vendor. Over 50% of those respondents using a service vendor and getting data delivered by mail or courier are planning expansion in this area.

- The small establishments (1-19 employees) are not planning any changes, even though some complained that late delivery of data, "fouls everything up."

- The large establishments, though not planning to add a computer to their existing installation, are planning to modify their current equipment (62%) and are planning to replace the current system with upgraded equipment (33%). These changes are primarily to accommodate the new programs being planned for the next five years. Most of these programs will be in industry specific areas such as:

EXHIBIT V-21

MANUFACTURING GROUP - COPIER FEATURES DESIRED



NUMBER OF RESPONDENTS = 50

- Production planning.

- Production scheduling.

- Numerical control.

- Other manufacturing applications.

• Some large size establishments are also planning to:

  - Switch from key punch to key-to-disk.

  - Go on-line with order entry to a service.

• When asked what advice they might care to pass on to computer manufacturers most of those respondents that cared to give advice said that local service was most important when selling in this industry.

• Local service was not included in the list of important factors when choosing a computer (Exhibit V-22). However, vendor reputation and support are two factors that were on the list, and local service is part of both items. Vendor reputation was rated the most important factor: 2.5 out of a possible 3.0. These small establishments do not have the personnel or the money to establish a "computer committee." Instead the decision makers will talk to others -their business associates primarily, in order to find out "who is best." The reference sale is extremely important in this industry group specifically and generally in all small establishment sales.

(2) Communications

• Overall, 22% of the establishments are planning to expand their telephone service or equipment during the next two years. The expansion plans are spread evenly thoughout the size groups. There are three main areas of change:

EXHIBIT V-22

MANUFACTURING GROUP - IMPORTANCE OF FACTORS IN CHOOSING COMPUTERS - INDEPENDENTS

FACTORS	RATING
SUPPORT	1.6
AVAILABLE SOFTWARE	1.4
DELIVERY SCHEDULE	2.3
VENDOR REPUTATION	2.5
AVAILABLE HARDWARE	2.2
COMPATIBILITY WITH LARGER SYSTEMS	2.4

RATINGS: VERY IMPORTANT = 3
SOMEWHAT IMPORTANT= 2
SLIGHTLY IMPORTANT = 1
UNIMPORTANT = 0

- Obtaining WATS service - both "in" WATS and "out" WATS.

- Switching from keyset to PABX or enhancing the current PABX.

- Buying new telephone equipment outright to save money.

- The industry seems amenable to private equipment and few establishments are not willing to listen to cost-effective proposals. However, the most important aspect in selling to this industry is <u>local</u> service. Each vendor must be able to demonstrate their service capabilities especially by reference selling. These owners/managers are not likely to be "the first in the area," with a new system.

(3) Office

- There are needs that were expressed by many respondents for word processing equipment in this industry, but few respondents felt that it could be cost justified. Nobody said that they were going to do anything about it. Three ideas were expressed by the respondents that must be attacked directly if word processors will be sold in this marketplace.

  - For bulk mailings, offset printing is more economical.

  - "Our computer can do anything we would want a word processor to do."

  - "First we will take care of our computer problems, then communications, and then word processing."

- If word processors were installed they would be used for:

  - Form letters.

  - Overseas invoices.

- Proposals.

- Plans.

- Addresses.

- Many respondents are looking towards a new "generation " of copier that will provide today's features at an order of magnitude lower cost.

- A problem cited by several respondents revolves around their filing needs. Put in terms of "it takes too long to locate material and keep it accurately cataloged," the need might satisfied with a computer as some claimed to have done, but less expensively, it might be satisfied with microfilm systems or some similar storage and retrieval system. The need was across establishment size but the larger establishments will be more prone to buy at first.

d. Budgeting

- Techniques of budgeting in small companies vary widely and frequently depend upon the organizational structure. Sole proprietorships and partnerships frequently do not budget. Small corporations, owned by one person or closely by a held family also do not budget. These establishments purchase capital items on an "as needed" basis.

- The establishments that do prepare budgets in this manufacturing group, specify funds for needed equipment (Exhibit V-23). Funds are not allocated on a bulk basis and then doled out when needed. Money is provided in the budget for the specific equipment or service to be purchased. This means the sale must be made prior to budget time so money can be itemized to cover the purchase. In order to ensure that the installation of equipment or service goes smoothly, the salesman must not undersell; but must make sure funds are provided for supplies, diskettes, and all of the little items that can make an installation "good."

EXHIBIT V-23

MANUFACTURING GROUP - BASIS FOR BUDGETING FOR INFORMATION HANDLING EQUIPMENT AND SERVICES - INDEPENDENTS

BUDGETING METHODS	PERCENT OF INDEPENDENT ESTABLISHMENT RESPONDENTS
PERCENT OF REVENUE	0
LAST YEAR'S CONSUMABLE COSTS	13%
HANDLE ON AN INDIVIDUAL BASIS	87
OTHER	0

NUMBER OF RESPONDENTS = 31

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE METHODS

2. PROCESS MANUFACTURING - FOOD AND KINDRED PRODUCTS

a. Industry Characteristics

- The food and kindred products group includes establishments manufacturing or processing food and beverages for human consumption. Certain related products: such as manufactured ice, chewing gum, fats and oil, and prepared feeds for animals are also included. The entire sector has about 24,000 establishments and about 1.5 million employees (Exhibit V-24). The total sector had revenues of about $195 billion in 1978 which averages $130,000/employee.

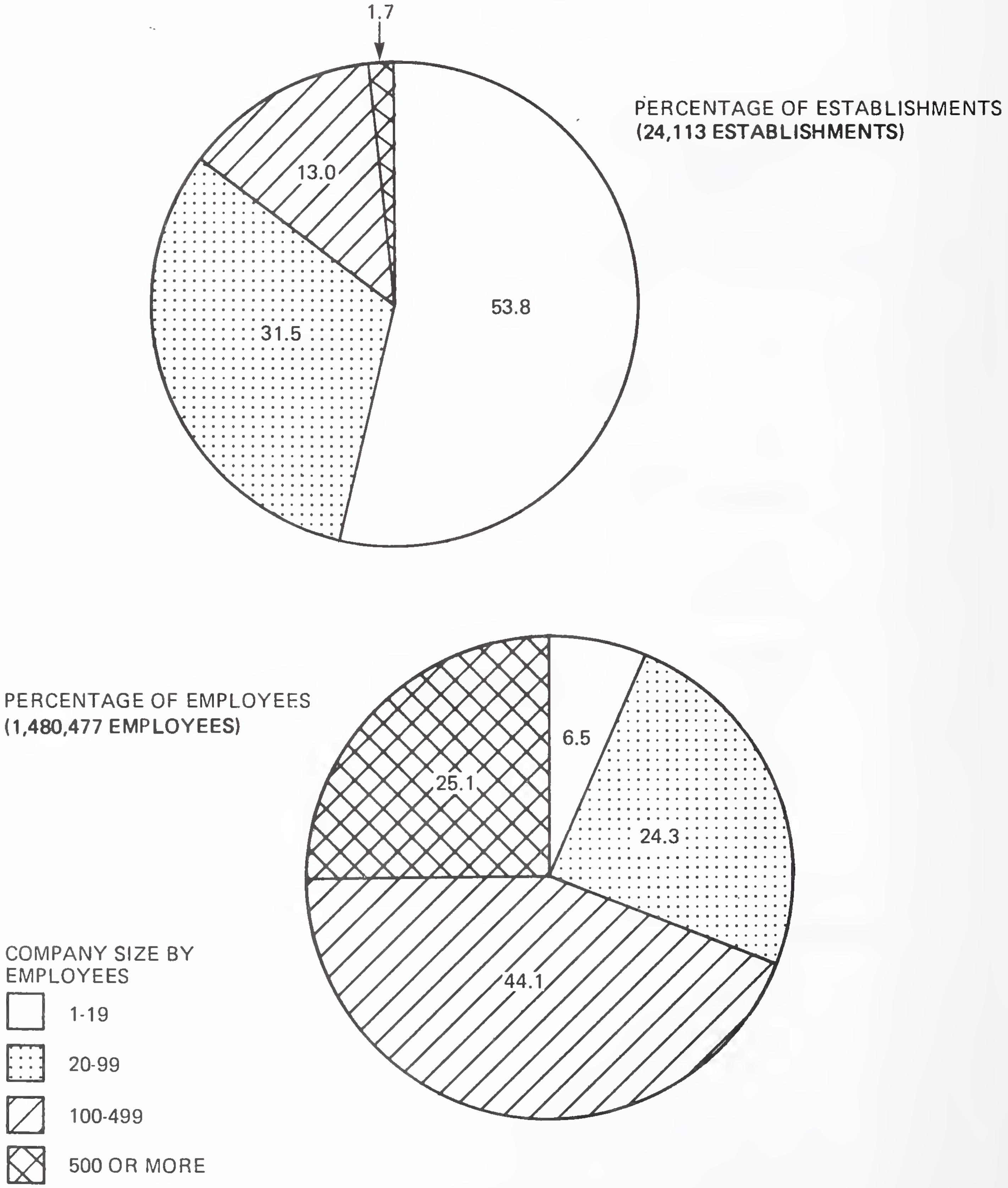
- The major subsectors are:

Name	Establishments (1976)	Employees (1976)
Meat Products	4,042	303,551
Dairy Products	3,597	167,394
Canned and Preserved Fruits and Vegetables	2,138	192,095
Grain Mill Products	2,817	113,749
Bakery Products	3,063	223,052
Sugar and Confectionary Products	1,087	103,711
Fats and Oils	803	42,642
Beverages	3,034	197,543
Miscellaneous Food Preparations	3,399	135,714

- The number of employees per establishment is quite high for the SES size categories:

EXHIBIT V-24

STRUCTURE OF THE FOOD MANUFACTURING SECTOR
(1976 DATA)



Establishment Size	Employees/Establishment
1-19	7.4
20-99	47.4
100-499	208.7

- The overriding characteristic of the industry from an SES standpoint is the lack of paperwork. Information is handled, transmitted, and manipulated; but if possible it is not done in paper form, especially in the larger establishments. The smaller establishments wish for an electric typewriter, the medium sized ones claim to buy a typewriter every ten years or so, and one respondent bought a rarely used copier because the nearest one is ten miles away.

b. Computer Equipment And Services Usage

- Exhibit V-25 shows a moderate amount of computer usage by the independents (63%) and a reasonably high penetration level at the branches (89%). Larger branches use outside services as well as their own system.

- Exhibit V-26 illustrates the projected growth to 1984, but at the expense of the in-house service center for the branches and the outside service companies for the independents.

- It is necessary to look beyond the broad numbers of Exhibit V-25 and V-26 to see the differences.

  - No small independent food manufacturing establishment (1-19 employees) respondent used computers, and this will not change by 1984.

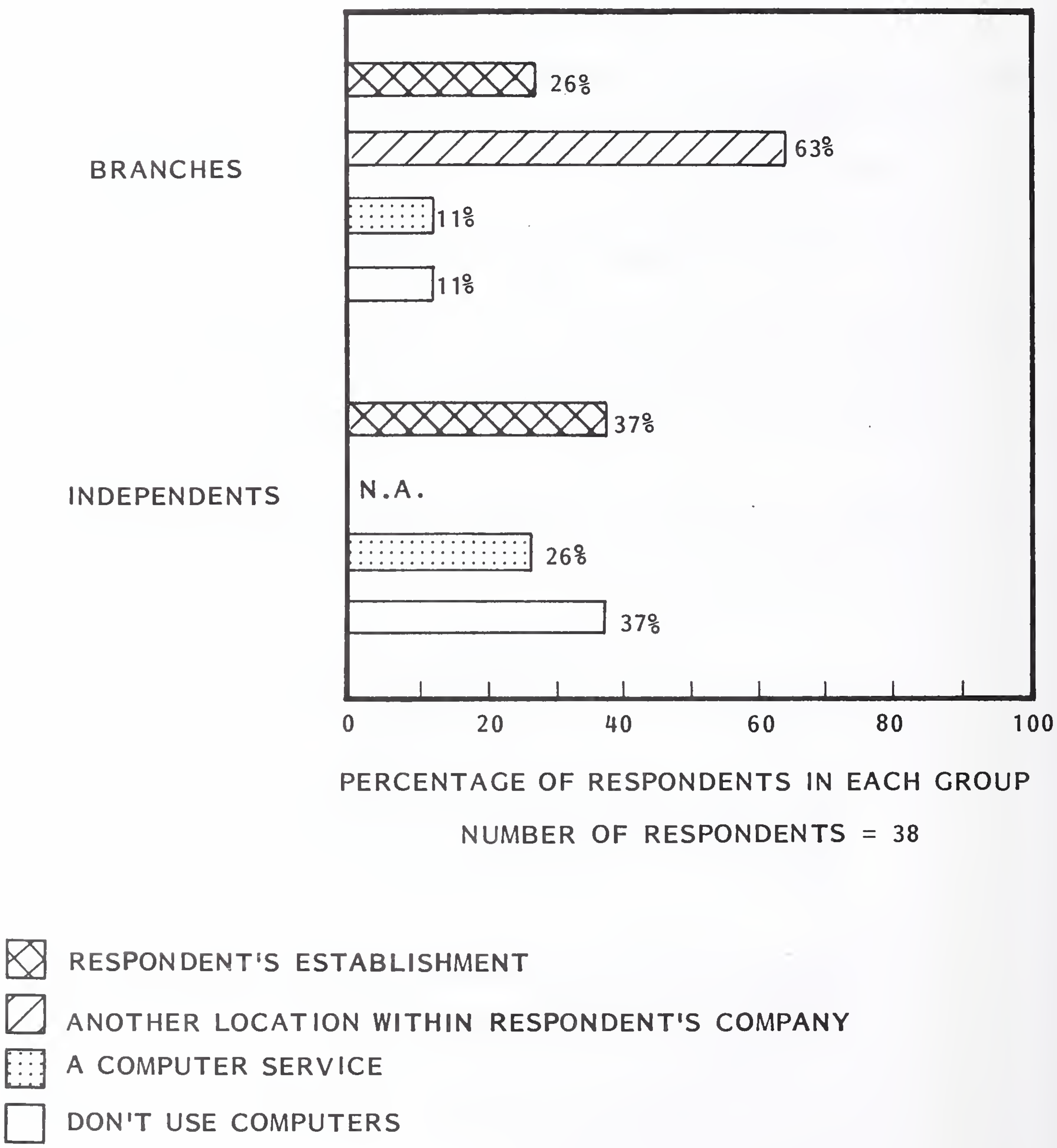
  - All small food manufacturing branches use the parent company system, and this will not change by 1984.

EXHIBIT V-25

FOOD MANUFACTURING SECTOR -

LOCATION OF COMPUTERS OR COMPUTER SERVICES USED BY RESPONDENTS

(1979)

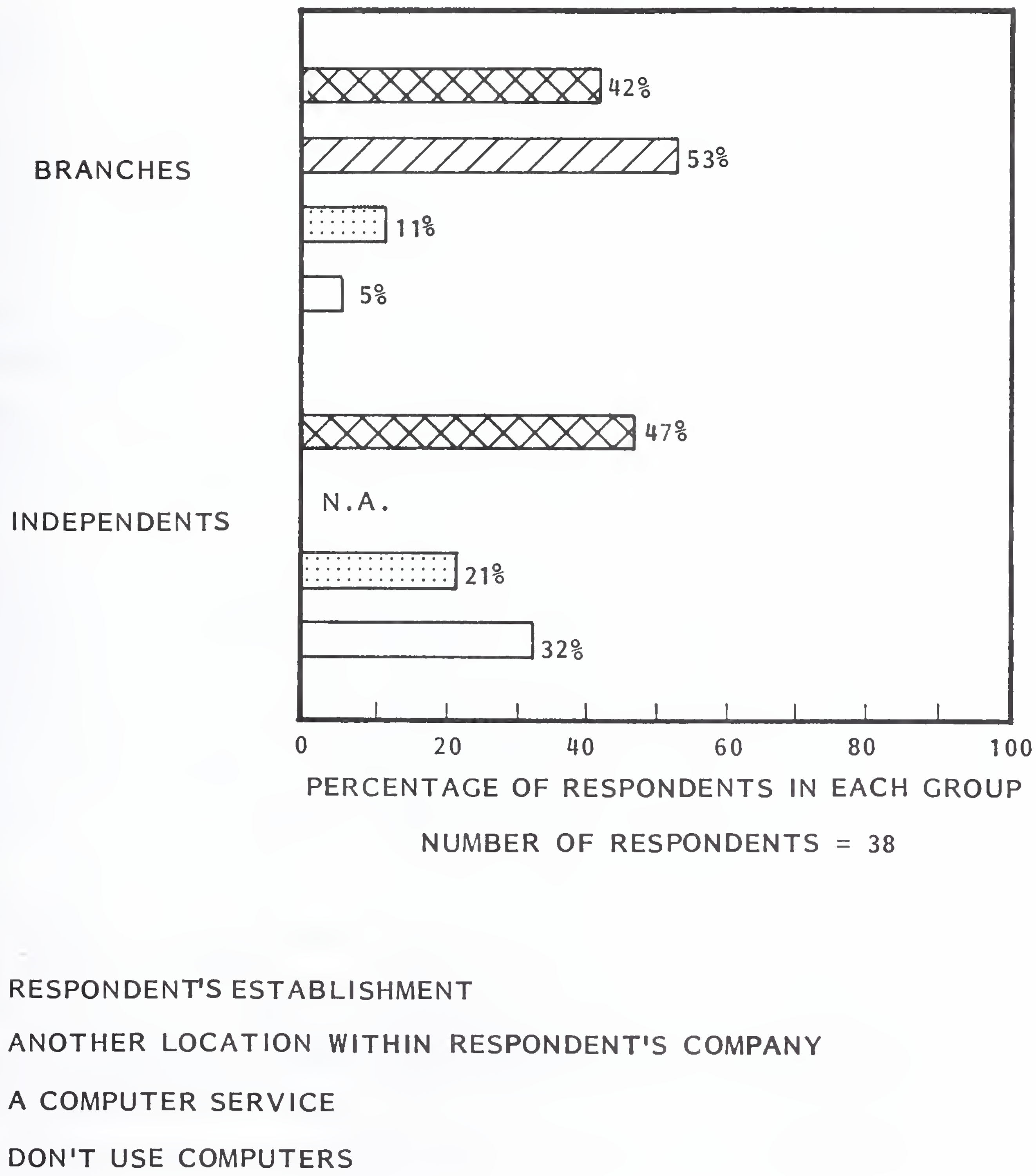


NOTE: TOTALS MAY ADD TO MORE THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

EXHIBIT V-26

FOOD MANUFACTURING SECTOR - LOCATION OF COMPUTERS OR COMPUTER SERVICES USED BY RESPONDENTS

(1984)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

- The medium size branches (20-99 employees) do not use outside services companies, and this will not change by 1984.

- All large establishments (100-499 employees) use computers, and this will not change by 1984.

- In the medium size category, the percentage of branches with their own system will increase from 14% to 29% during the next five years. The establishments that do not use computers are the ones who will be getting their own. Those that use the parent company's system will continue to do so. The doubling of the number of medium size independents with their own system between now and 1984 will come at the expense of the outside service companies and from the "do not use computers," group.

- In the large food manufacturing branches, all of the growth to 1984 by the "have our own system" group will come from the intra-company services group. The use of outside services will remain the same. No change in computer usage during the coming five years is projected by the large independent food manufacturing concerns.

- The basic accounting functions and payroll are the applications that are performed for the branches by the corporate computer. The outside service companies do payroll and manufacturing functions for the independents, but very little accounting. With both groups, data is sent or received by mail or messenger. Occasionally, payroll is done by one outside service company locally, while the more sophisticated manufacturing functions are handled by a larger, more remote system.

- The branches, with their high level of automation would be expected to have progressed to the use of computers in the manufacturing applications. The branches are more highly automated in the "standard areas" than the independents (compare Exhibits V-27 and V-28). In the automating of marketing and sales applications, the branches are at a higher level than many industries in the study. In automating their industry specific applications they are ahead of

EXHIBIT V-27

FOOD MANUFACTURING SECTOR - PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS - BRANCHES

APPLICATIONS	BRANCHES OF LARGE CORPORATIONS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MARKETING AND SALES			
ORDER ENTRY	18%	47%	59%
SALES ANALYSIS	18	41	53
CREDIT AUTHORIZATION	12	18	24
OTHER MARKETING/ SALES	0	12	12
ACCOUNTING & FINANCE			
PAYROLL	18	82	88
BILLING	18	82	94
ACCOUNTS RECEIVABLE	18	82	94
ACCOUNTS PAYABLE	18	76	88
GENERAL LEDGER	12	41	47
DISTRIBUTION			
ORDER ALLOCATION	12	29	35
SHIPPING	18	12	18
STOCK REPLENISHMENT	12	12	18
PURCHASING			
INVENTORY CONTROL	24	47	59
RECEIVING	18	29	41

NUMBER OF RESPONDENTS = 17

EXHIBIT V-27 (CONTD)

FOOD MANUFACTURING SECTOR - PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS - BRANCHES

APPLICATIONS	BRANCHES OF LARGE CORPORATIONS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MANUFACTURING			
BILL OF MATERIALS	0	18%	18%
SHOP FLOOR CONTROL	0	6	6
ORDER TRACKING	0	18	18
MATERIAL REQUIREMENTS PLANNING	0	18	18
SCHEDULING	0	6	0
JOB COSTING	0	6	6
ESTIMATING	0	12	12
NUMERICAL CONTROL	0	6	6

NUMBER OF RESPONDENTS = 17

EXHIBIT V-28

FOOD MANUFACTURING SECTOR - PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS - INDEPENDENTS

APPLICATIONS	INDEPENDENT ESTABLISHMENTS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MARKETING AND SALES			
ORDER ENTRY	63%	16%	21%
SALES ANALYSIS	63	16	32
CREDIT AUTHORIZATION	63	11	21
ACCOUNTING & FINANCE			
PAYROLL	42	53	58
BILLING	58	37	42
ACCOUNTS RECEIVABLE	58	37	42
ACCOUNTS PAYABLE	58	37	47
GENERAL LEDGER	58	37	47
DISTRIBUTION			
ORDER ALLOCATION	42	0	5
SHIPPING	53	5	16
STOCK REPLENISHMENT	42	0	5
PURCHASING			
INVENTORY CONTROL	68	16	32
RECEIVING	68	11	21

NUMBER OF RESPONDENTS = 19

EXHIBIT V-28 (CONTD)

FOOD MANUFACTURING SECTOR - PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS - INDEPENDENTS

APPLICATIONS	INDEPENDENT ESTABLISHMENTS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MANUFACTURING			
BILL OF MATERIALS	79%	5%	21%
SHOP FLOOR CONTROL	79	5	16
ORDER TRACKING	79	5	16
MATERIAL REQUIREMENTS PLANNING	84	5	21
SCHEDULING	84	5	16
JOB COSTING	89	0	21
ESTIMATING	74	5	21
NUMERICAL CONTROL	79	5	21

NUMBER OF RESPONDENTS = 19

the independents now but show no inclination to do any more by 1984 than they are doing currently, and will be far behind by then. All other application areas will show some increase during the coming five years in automation level except the manufacturing function at the branch level.

- There are opportunities in this industry:

    - Small branches get charged less that $1,500 per year by the parent company for computer services. Computer service vendors should try to provide some services at about that price to the small independent establishments, concentrating on the manufacturing applications.

    - The manufacturing applications should be offered to all establishments in this sector.

    - Minicomputers can be sold to the medium and large organizations, and those with systems are looking for increased capacity to handle the manufacturing applications.

c. <u>Communications Equipment</u>

- The branches have more communications needs than the independents since they must communicate with their parents. Consequently, branches are more diversified communications customers.

- The independents use keysets and some have a private telephone system (Exhibit V-29). The large branches use PABX's, are heavy WATS users and TELEX/TWX subscribers. Facsimile is used at all size levels.

- The independent food manufacturing establishments in the medium and large groups generally (43%) expressed a strong interest either in changing their telephone set-up or in studying ways to reduce costs. One respondent is exploring ways to send data faster without tying up the telephone lines.

EXHIBIT V-29

FOOD MANUFACTURING SECTOR -
COMMUNICATIONS EQUIPMENT AND SERVICES USED BY RESPONDENTS
(PERCENTAGE OF RESPONDENTS)

TYPE OF EQUIPMENT/SERVICE	INDEPENDENT ESTABLISHMENTS	BRANCHES OF LARGE GOVERNMENTS
COMMUNICATIONS EQUIPMENT		
KEYSET	94%	68%
PABX	6	32
INTERCONNECT	11	0
FACSIMILE	0	11
COMMUNICATIONS SERVICES		
WIDE-AREA TELEPHONE SERVICE (WATS)	11	53
TELEX/TWX	6	32
LEASED LINES	6	11
NON-TELEPHONE COMPANY SUPPLIED SERVICES	0	0

NUMBER OF RESPONDENTS = 37

- The branches use facsimile equipment for:

  - Intra company reports.

  - To send documents to company lawyers.

  - Weekly sales, shipments, reports, etc.

- None of the smaller establishments claimed to have any problems in this area. "A simple phone is all we need," sums it up at this level.

d. Office Equipment Usage

- The initial comments concerning office equipment and the non-paper orientation of the industry are pointed out by Exhibit V-30.

  - Nobody uses electronic typewriters.

  - Nobody uses word processing equipment.

- The branches have difficulty getting typewriters from corporate headquarters.

  - "If we could get a decent typewriter from corporate, it would be blissful."

  - "We may go and just buy a typewriter and then try to get reimbursed for it."

- Some concerns were felt that the statistical nature of the reports are not suited for memory typewriters, and most work is on preprinted forms. The rate at which they use the forms currently means they have a five years supply on hand.

EXHIBIT V-30

FOOD MANUFACTURING SECTOR - OFFICE EQUIPMENT USED BY RESPONDENTS

(PERCENTAGE OF RESPONDENTS)

TYPE OF EQUIPMENT	INDEPENDENT ESTABLISHMENTS	BRANCHES OF LARGE CORPORATIONS
ELECTRONIC TYPEWRITERS	0	0
STANDALONE WORD PROCESSORS	0	0
COATED PAPER COPIERS	67%	32%
PLAIN PAPER COPIERS	28	74
DUPLICATING EQUIPMENT	17	0
PRINT SHOP	0	0

NUMBER OF RESPONDENTS = 37

- Copiers fare somewhat better. The independents use coated paper copiers, while the branches primarily use plain paper copiers. The independent companies showed no preference for any particular features on new copiers, while the branches all stressed output quality.

- Some independents did not have a copier and one respondent bought one to save an occasional ten mile drive.

- About 8% of the respondents said they needed a new copier and one felt he could not justify the expense that better quality output would cost.

3. DISCRETE MANUFACTURING - ELECTRICAL AND ELECTRONIC EQUIPMENT

a. Industry Characteristics

- The electrical and electronic equipment manufacturing sector contains many more large companies than many other sectors of the economy and is different in that respect from the national averages:

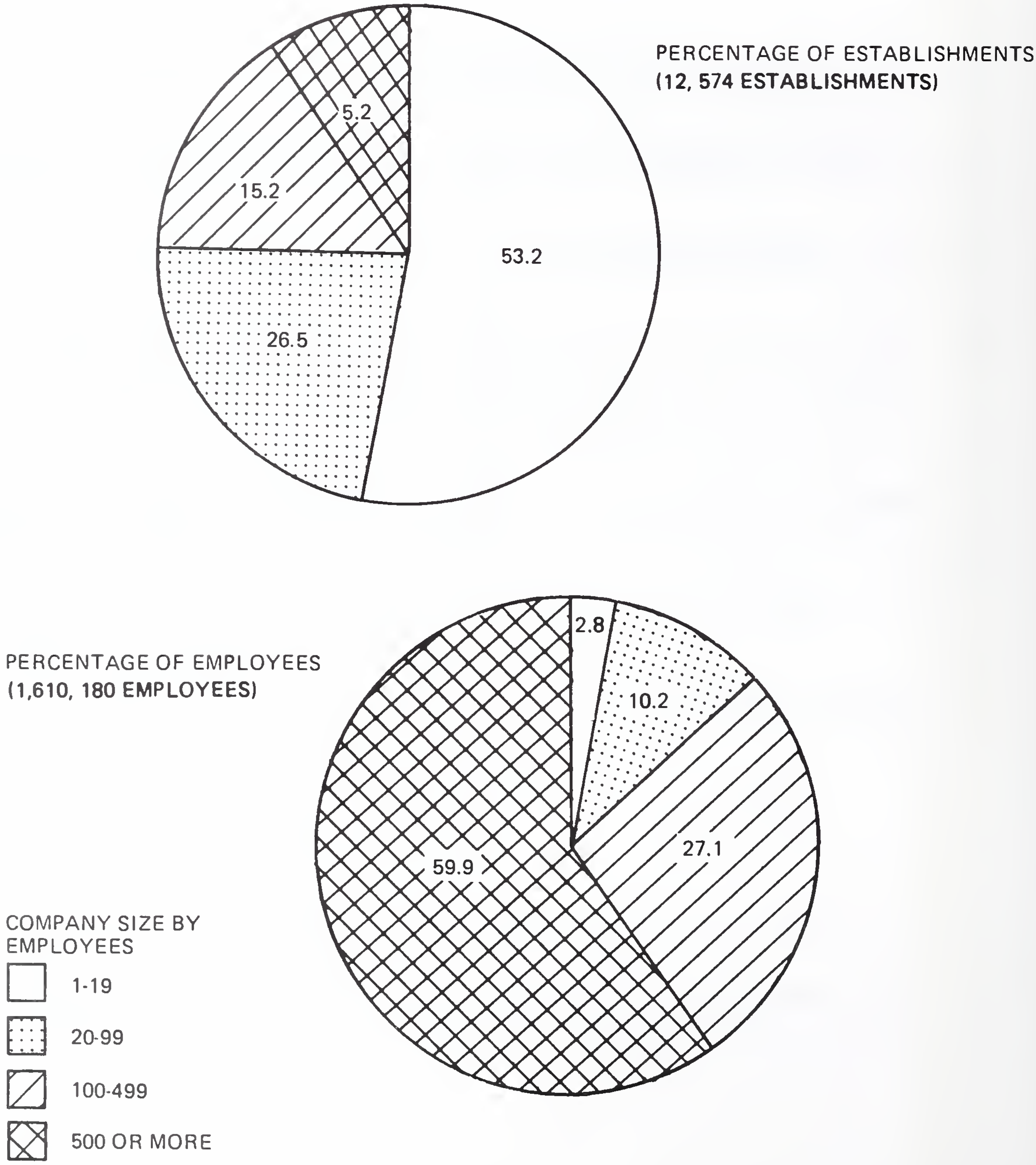
Percent of Establishments	National Average	Electrical Equipment
100-499	1.7	15.2
500 and over	0.3	5.2
Percent of Employees		
100-499	23.1	27.1
500 and over	22.9	59.9

  - The structure of this industry sector is shown in Exhibit V-31.

- The industry had revenues of about $114 billion in 1978 which average out to about $70,000/employee.

EXHIBIT V-31

STRUCTURE OF THE ELECTRICAL AND AND ELECTRONIC EQUIPMENT SECTOR (1976 DATA)



- The subsectors within the Electrical and Electronic Equipment manufacturing group are:

Subsector	Percent of Establishments	Percent of Employees
Electric Distributing Equipment	6.4%	7.0%
Electrical Industrial Apparatus	11.7	11.7
Household Appliances	4.9	9.7
Electric Lighting and Wiring Equipment	14.4	10.0
Radio and TV Receiving Equipment	8.0	5.6
Communication Equipment	15.7	27.3
Electronic Components and Accessories	24.9	20.5
Miscellaneous Electrical Equipment and Supplies	11.2	7.9
Administrative and Auxiliary Units	2.8	0.3

- The average number of employees/establishment within each size category is:

Establishment Size	Employees/Establishment
1-19	6.7
20-99	49.6
100-499	228.8

These are among the highest averages in this study.

b. Computer Equipment And Services Usage

- The electrical and electronic equipment industry is looking forward to expanding their present computer operations or, if they are not automated, of becomng so in the next five years.

- In Exhibit V-32 as many independents have their own system as do not use computers at all. By 1984 (Exhibit V-33) more than twice as many establishments will have their own computers, compared with those that do not use computers at all. Those using computer services appear to remain constant. The total percentage is constant but the customers will not be the same.

  - In 1979, 17% of the large independent establishments use no computers at all. By 1984 all of these firms will be using an outside service company.

  - One-half of the independent medium size establishments that do not use computers and one-third of the computer services users in the same group will be using their own system for all work by 1984.

  - In 1979, no small independent electrical manufacturer has an in-house system, but 20% will have them in five years. These customers will come from the "do not use computers," group and the users of outside services will remain constant.

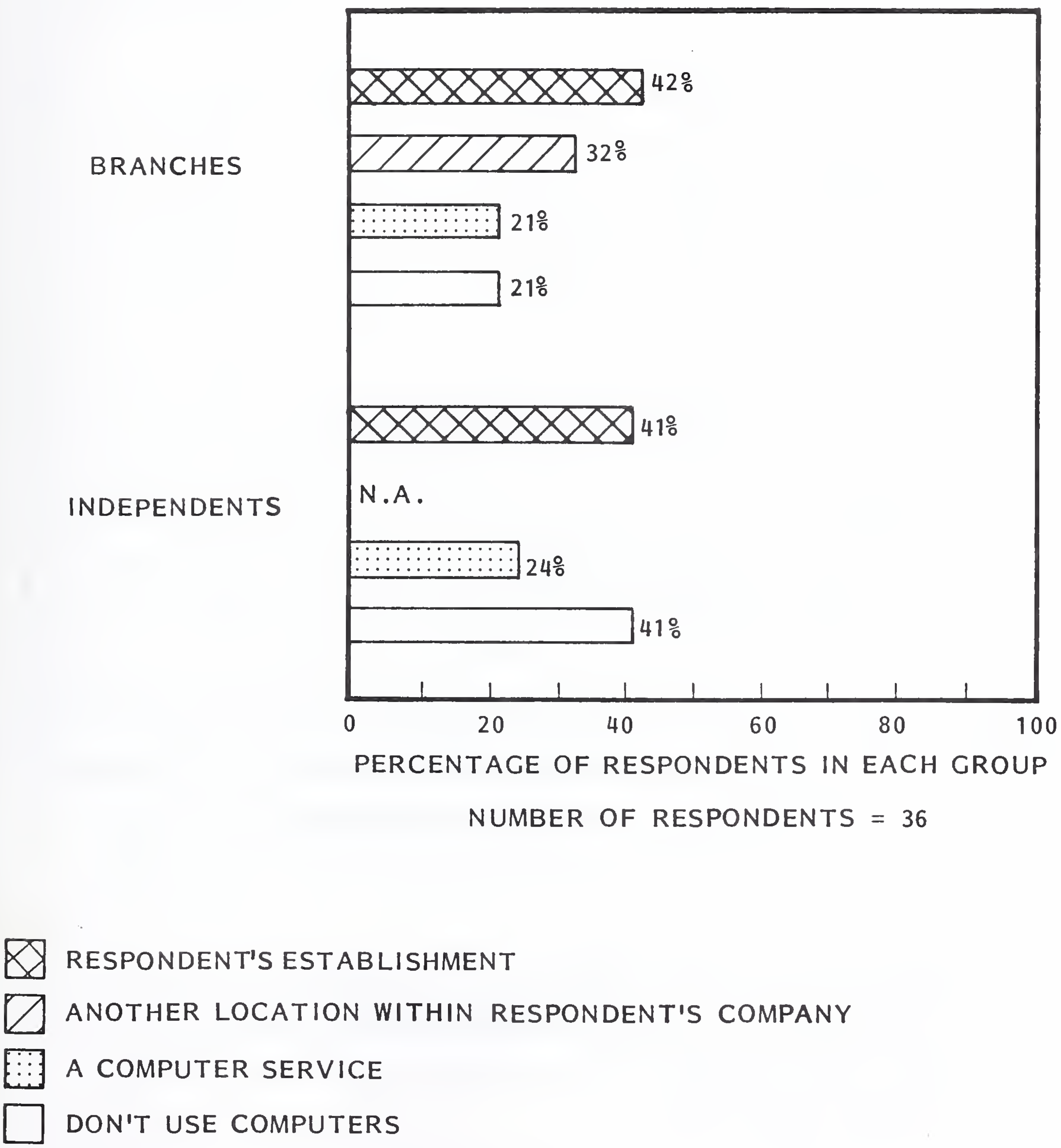
- As has been generally typical with the industries studied this year, the branches project much less change than the independents. The existence of a parent company computer service center has resulted in less desire to explore other avenues for processing work. It is usually assumed that it is less expensive to use intra-company services. It is usually easier to do so. The use of internal and external services will drop off slightly as more branches buy their own systems. Those that are not automated now will not be by 1984. Within the subgroups the variations expected between 1979 and 1984 are:

  - No change at all in the large branch group.

  - In-house services will lose some medium sized customers to their own system. External services and the "do not use" group will be stable.

EXHIBIT V-32

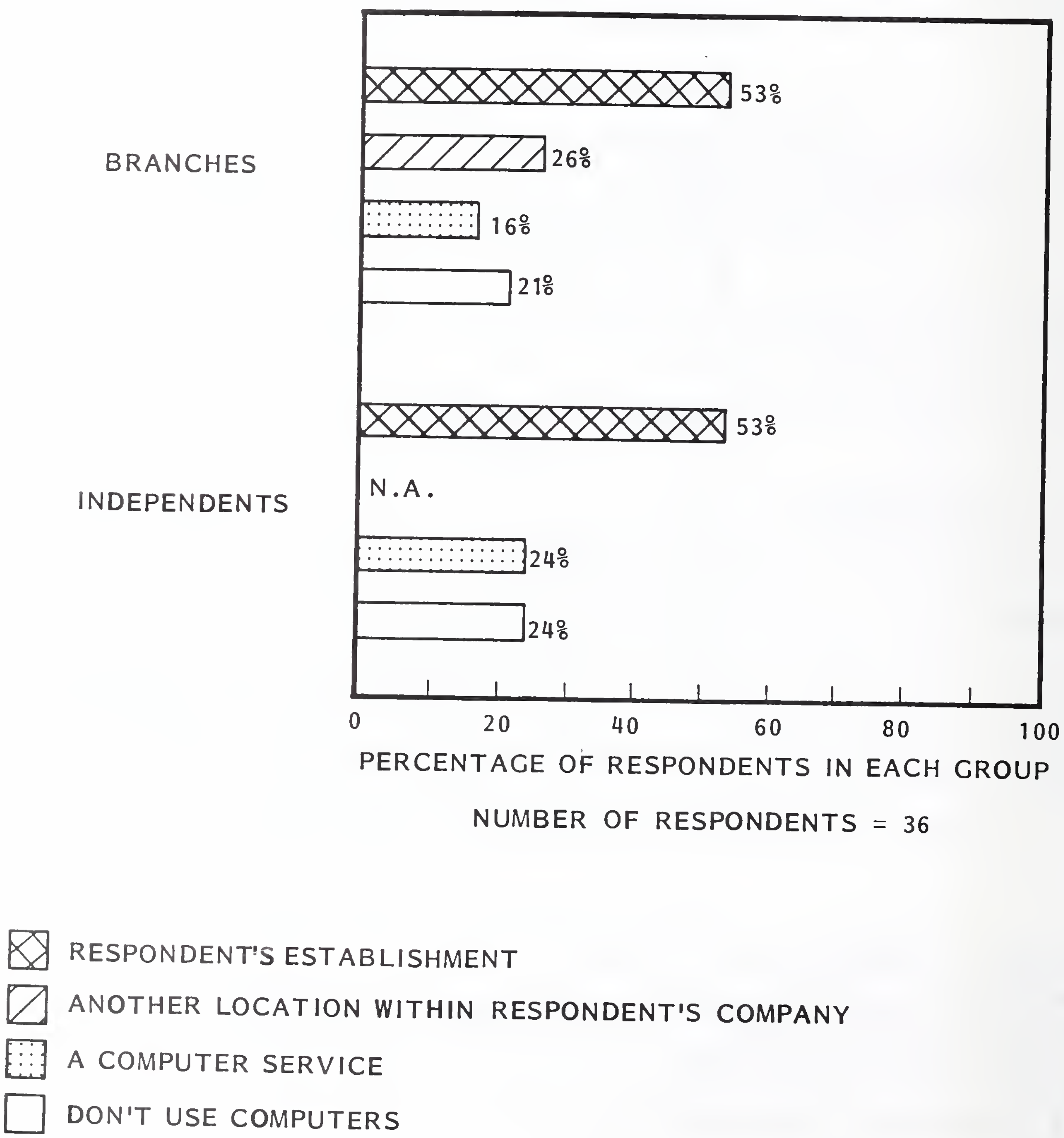
ELECTRICAL AND ELECTRONIC EQUIPMENT SECTOR - LOCATION OF COMPUTERS OR COMPUTER SERVICES USED BY RESPONDENTS (1979)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

EXHIBIT V-33

ELECTRICAL AND ELECTRONIC EQUIPMENT SECTOR - LOCATION OF COMPUTERS OR COMPUTER SERVICES USED BY RESPONDENTS (1984)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

- One-third of the small branches now use external services and they will all have their own systems in five years. The non-automated branches will remain non-automated.

- In general those applications not already automated in the branches in 1979 will not be automated by 1984 (Exhibit V-34 and Exhibit V-35). The only exception is in the accounting areas where some companies will be adding new applications.

- The independent establishments report that much more activity is expected in the next few years. All application areas show growth with the biggest changes occurring in the manufacturing applications. Several independent respondents use their computer for the "problem areas" first, such as manufacturing functions and are now getting around to the more usual accounting and financial applications.

- One respondent felt that anything they bought (in computers) would be obsolete in two years, so they do not use computers. This contrasts with another respondent who said his computer is about ten years old and now that the kinks are out of it why should he get new one? There were several volunteered comments about vendors not doing what they promised, especially with respect to programming, and others concerning how the workload eased now that the computer had arrived.

- The industry is generally forward looking. Both branches and independents will be expanding, especially with additional CRT terminals and more memory for the new applciations. Many companies will be moving to service centers and those already using them will be looking for new applications in the manufacturing area.

- An important consideration in choosing a computer vendor is the availability of local service. In several cases the respondents volunteered that this was the determining factor in choosing a particular vendor.

EXHIBIT V-34

ELECTRICAL AND ELECTRONIC EQUIPMENT SECTOR - PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS - BRANCHES

APPLICATIONS	BRANCHES OF LARGE CORPORATIONS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MARKETING AND SALES			
ORDER ENTRY	32%	32%	32%
SALES ANALYSIS	42	26	26
CREDIT AUTHORIZATION	42	21	21
PRICING AND MARKET RESEARCH	0	5	5
ACCOUNTING & FINANCE			
PAYROLL	21	79	79
BILLING	37	63	74
ACCOUNTS RECEIVABLE	37	63	74
ACCOUNTS PAYABLE	37	58	68
GENERAL LEDGER	47	47	63
DISTRIBUTION			
ORDER ALLOCATION	42	21	21
SHIPPING	37	21	21
STOCK REPLENISHMENT	37	21	21
PURCHASING			
INVENTORY CONTROL	57	42	47
RECEIVING	47	32	32

NUMBER OF RESPONDENTS = 19

EXHIBIT V-34 (CONTD)

ELECTRICAL AND ELECTRONIC EQUIPMENT SECTOR - PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS - BRANCHES

APPLICATIONS	BRANCHES OF LARGE CORPORATIONS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MANUFACTURING			
BILL OF MATERIALS	58%	32%	32%
SHOP FLOOR CONTROL	53	26	26
ORDER TRACKING	53	26	26
MATERIALS REQUIREMENTS PLANNING	68	32	32
SCHEDULING	63	32	32
JOB COSTING	68	32	32
ESTIMATING	68	32	32
NUMERICAL CONTROL	58	26	26
ANALYSIS/DESIGN	37	11	11
ENGINEERING	16	5	5

NUMBER OF RESPONDENTS = 19

EXHIBIT V-35

ELECTRICAL AND ELECTRONIC EQUIPMENT SECTOR - PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS - INDEPENDENTS

APPLICATIONS	INDEPENDENT ESTABLISHMENTS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MARKETING AND SALES			
ORDER ENTRY	50%	40%	47%
SALES ANALYSIS	56	25	44
CREDIT AUTHORIZATION	62	19	38
ACCOUNTING & FINANCE			
PAYROLL	38	56	75
BILLING	38	56	75
ACCOUNTS RECEIVABLE	38	56	75
ACCOUNTS PAYABLE	38	56	75
GENERAL LEDGER	44	50	75
OTHER ACCOUNTING/ FINANCE	0	6	6
DISTRIBUTION			
ORDER ALLOCATION	50	19	25
SHIPPING	44	12	19
STOCK REPLENISHMENT	44	12	19
PURCHASING			
INVENTORY CONTROL	56	31	44
RECEIVING	62	25	38

NUMBER OF RESPONDENTS =16

EXHIBIT V-35 (CONTD)

ELECTRICAL AND ELECTRONIC EQUIPMENT SECTOR -
PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS -
INDEPENDENTS

APPLICATIONS	INDEPENDENT ESTABLISHMENTS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MANUFACTURING			
BILL OF MATERIALS	69%	25%	44%
SHOP FLOOR CONTROL	75	12	44
ORDER TRACKING	69	12	44
MATERIALS REQUIREMENTS PLANNING	69	25	44
SCHEDULING	62	19	44
JOB COSTING	81	12	44
ESTIMATING	81	12	44
NUMERICAL CONTROL	75	12	44
ANALYSIS/DESIGN	69	12	25

NUMBER OF RESPONDENTS = 16

c. <u>Communications Equipment</u>

- The electrical and electronic equipment industry is growing and as the companies expand they will be looking to expand their services and upgrade their equipment.

  - Fourteen percent of the respondents will be getting new telephone systems within two years.

  - Eight percent of the respondents recently purchased new telephone systems which they feel will be sufficient for awhile.

  - The industry is aware that private equipment is available and that in some cases it makes economic sense to purchase your own telephone equipment.

- The use of keysets and PABXs follows the usual patterns of branches using PABXs more while the independents use keysets more (Exhibit V-36).

- Facsimile equipment is used by more than the usual number of establishments. The primary uses are to transmit urgent data of all kinds: engineering specifications and blueprints.

- Considering that many companies in this industry are very large, the use of WATS lines or leased lines by either the branches or independents is surprisingly low.

d. <u>Office Equipment Usage</u>

- Typing equipment ranges from a manual home portable typewriter through an old Singer tape machine to memory typewriters and a minimum of word processing equipment.

EXHIBIT V-36

ELECTRICAL AND ELECTRONIC EQUIPMENT SECTOR - COMMUNICATIONS EQUIPMENT AND SERVICES USED BY RESPONDENTS

(PERCENTAGE OF RESPONDENTS)

TYPE OF EQUIPMENT/SERVICE	INDEPENDENT ESTABLISHMENTS	BRANCHES OF LARGE CORPORATIONS
COMMUNICATIONS EQUIPMENT		
KEYSET	76%	47%
PABX	24	53
INTERCONNECT	12	5
FACSIMILE	0	21
COMMUNICATIONS SERVICES		
WIDE-AREA TELEPHONE SERVICE (WATS)	29	37
TELEX/TWX	29	42
LEASED LINES	0	0
NON-TELEPHONE COMPANY SUPPLIED SERVICES	0	0

NUMBER OF RESPONDENTS = 36

- The attitudes of the respondents indicates this is not a near term word processing market, although one respondent who has a system wants to upgrade it to a communicating word processor.

    - One small independent respondent felt he could get a word processor or another office person. In a recession he could fire the person but would be stuck with the word processor.

- Several respondents felt the computer could handle the word processing requirements.

    - Many manufacturers were content dealing with a small relatively fixed customer base and therefore had little repetitive typing that would justify any advanced text editing equipment.

- "Not much bulk mailing," was a typical comment. Part of the problem in the use of word processing is due to misconceptions about the range of applications of word processing equipment.

- Plain paper copiers are dominant, with some establishments having both types. Some have none and a few have a blueprint machine in addition to copiers (see Exhibit V-37).

- The independent manufacturers want two papers sizes in their copiers, especially C and D size blueprints. They, therefore, want blue line copying also. The branches stress reduction, collating and output quality as the most important features for new copiers.

	SIZE CATEGORIES (1976 Data)		
	1-19	20-99	100-499
Percent of Establishments	89.5%	9.8%	0.7%
Percent of Employees	47.4	37.9	14.7
Employees/Establishments	5.3	38.6	206.0

b. Computer Equipment And Services Usage

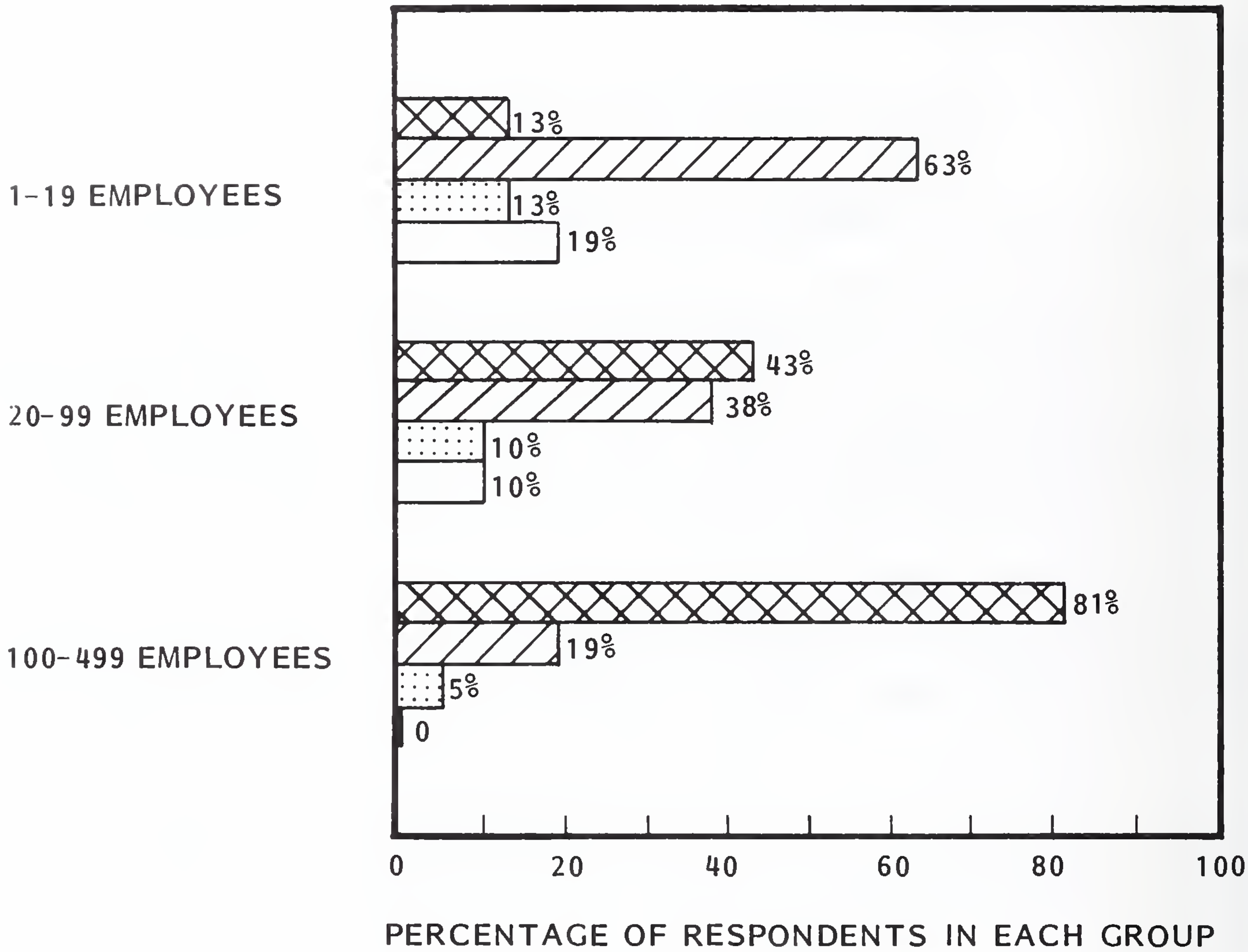
(1) Computers And Services

- Overall, 54% of this group have an in-house system, 35% use a service center and 15% do not use computers at all. The use of in-house systems increases with establishment size in both branches and independents. The use of computer services, both intra company and external, decreases with increasing size in the branches (Exhibit V-38), but not in the independent establishments (Exhibit V-39). More small branches use an intra-company service center than do the medium companies. As the companies get larger they tend to justify an in-house system to take over the functions performed by the parent company, but still maintain contact through a communications line. Those companies using outside service vendors tend to drop the connection once they get the in-house system. Service vendors are frequently used for special applications: jobs too large to run on the in-house system or for one shot runs.

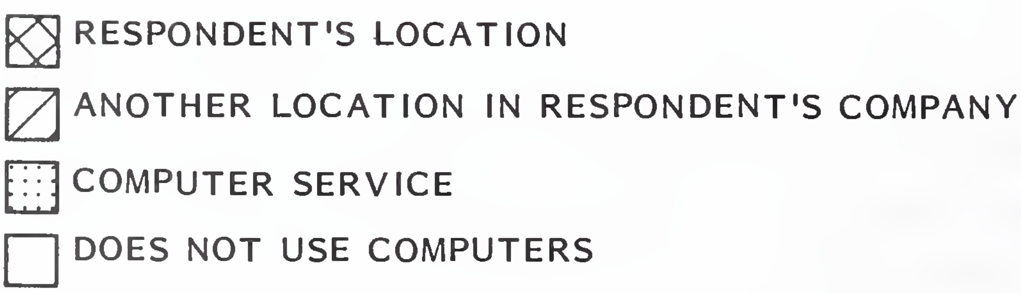
- Slightly over 1,000 terminals are being used in the distribution groups with 91.5% in the large establishments, 7.3% in the medium and 1.3% in the small category. These establishments use the terminals to communicate primarily with their service center as shown in Exhibit V-40. Physical delivery can be a private courier service, a member of the company whose function it is to provide courier data service, or in many cases whoever has a "moment" free deliveries and/or retrieves the material. In one case the "moment" is an hour and a half drive each way.

EXHIBIT V-38

DISTRIBUTION GROUP
LOCATION OF COMPUTER OR COMPUTER SERVICES
USED BY RESPONDENTS - BRANCHES



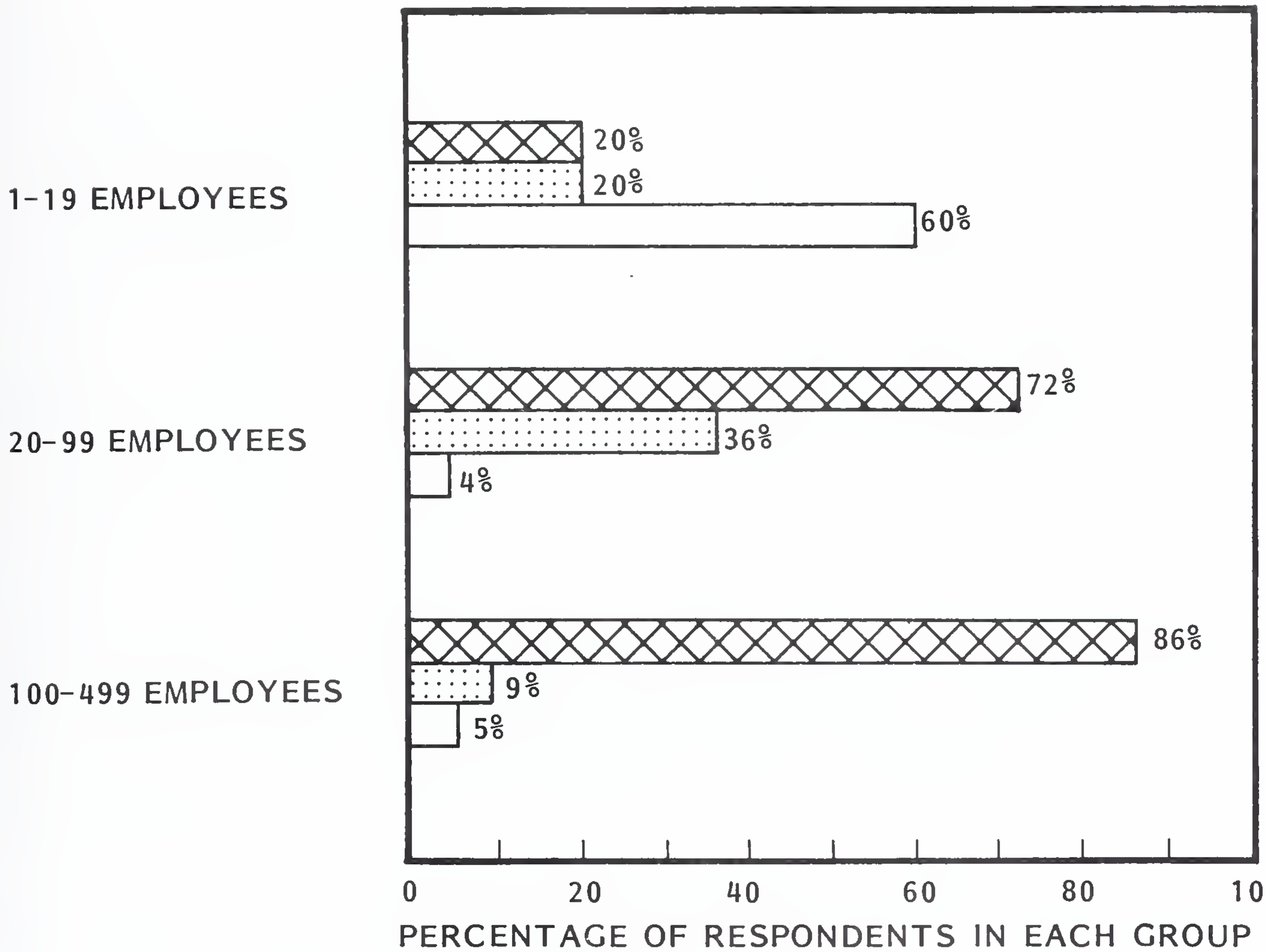
NUMBER OF RESPONDENTS = 58



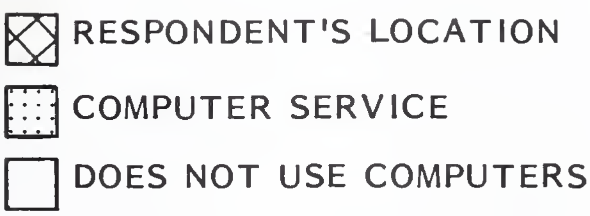
NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

EXHIBIT V-39

DISTRIBUTION GROUP -
LOCATION OF COMPUTERS OR COMPUTER SERVICES
USED BY RESPONDENTS - INDEPENDENTS



NUMBER OF RESPONDENTS = 67



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

EXHIBIT V-40

DISTRIBUTION GROUP - METHODS RESPONDENTS USED TO SEND AND RECEIVE DATA - INDEPENDENTS

METHODS USED	PERCENTAGE OF INDEPENDENT ESTABLISHMENT RESPONDENTS
INTERACTIVE	29%
BATCH	14
VOICE (TELEPHONE)	10
PHYSICAL DELIVERY	48

NUMBER OF RESPONDENTS = 21

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE METHODS

- While the U.S. Mail is the most commonly used means of sending data from place to place, the medium sized establishments use interactive terminals much more than the large or the small establishments. The large establishments tend to prefer batch terminals because it is more cost-effective when large volumes of data are involved.

- Corporate headquarters writes most of the programs for of the branches in 1-19 employee class, but they do no programming for the other two size categories. Since 63% of the branches in the 1-19 class use the corporate system this high usage of the corporate programming shop might be expected. However the other two groups (20-99 and 100-499 employees) also use the corporate computer 38% and 19% respectively, but receive no programming service.

- Even though over 70% of the medium and large independent establishments have their own systems as do 20% of the small establishments, still 38% make use of standard programs. Only half of the independents claim to write their own programs (Exhibit V-41).

- A substantial amount of software is also contracted out to software specialty houses by all three groups. The medium size companies however, reverse the order and prefer to modify standard programs rather than use a software house.

- There is a strong market for software packages and custom software from outside vendors in the distribution marketplace. The independent retail establishments are planning to continue their automation of the basic marketing, financial, distribution and purchasing functions. In general, the non-durable wholesale goods sector will look after the same areas with emphasis on purchasing and sales analysis. The freight forwarding sector shows interest in automating the marketing functions during the next five years.

EXHIBIT V-41

DISTRIBUTION GROUP - METHODS OF OBTAINING COMPUTER PROGRAMS - INDEPENDENTS

METHODS USED	PERCENTAGE OF INDEPENDENT ESTABLISHMENT RESPONDENTS
USE STANDARD PROGRAMS	27%
MODIFY STANDARD PROGRAMS	11
WRITTEN BY A SOFTWARE HOUSE	16
WRITE OUR OWN	49

NUMBER OF RESPONDENTS = 37

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE METHODS

- Leasing companies have impacted the small establishments as well as the large corporations. Over 70% of the branches lease equipment and 43% of the independents also lease their systems. While it is true that many large system vendors lease as well as rent in this market, it is most likely that the system is leased from a third party company. Rental of equipment apparently is not economically viable today and few respondents took that approach (Exhibit V-42).

- How establishments pay for computer services is very dependent upon:

  - How they interact with the service, and

  - Who supplies the Service.

  Branches frequently receive free service from the parent company. Most establishments pay flat rate plus either a per transaction fee or if interactively receiving data, they pay on a time used basis. Of the 14% of the independents in Exhibit V-43 who pay in "other" ways several mentioned annual flat contract rates.

(2) Communications Equipment

- Virtually all of the establishments that use interconnect equipment claim "economy now," or "good long term investment" as the prime reasons for buying their own system. Some respondents claim that the equipment had superior features which they felt they needed. One respondent wanted to buy from a Bell operating company, but claims he could not. The 13% interconnect penetration level for the independent establishments in this group is average for groups in this study (Exhibit V-44).

- The use of common carriers other than a Bell company is fairly constant in all establishment size categories. This is really not by choice but because usually only one carrier services an area. In general people were satisfied with the service they were getting from these companies.

EXHIBIT V-42

DISTRIBUTION GROUP - PRESENT TERMS OF ACQUIRING COMPUTER EQUIPMENT - INDEPENDENTS

TERMS USED	PERCENTAGE OF INDEPENDENT ESTABLISHMENT RESPONDENTS
RENT	6%
LEASE	43
PURCHASE	51

NUMBER OF RESPONDENTS = 35

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE METHODS

EXHIBIT V-43

DISTRIBUTION GROUP -
METHODS USED TO PAY FOR COMPUTER SERVICES -
INDEPENDENTS

METHODS USED	PERCENTAGE OF INDEPENDENT ESTABLISHMENT RESPONDENTS
BY TRANSACTION	33%
BY TIME	10
FLAT MONTHLY RATE	52
OTHER	14

NUMBER OF RESPONDENTS = 21

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE METHODS

EXHIBIT V-44

DISTRIBUTION GROUP - SOURCES OF TELEPHONE EQUIPMENT - INDEPENDENTS

SOURCES OF TELEPHONE EQUIPMENT	PERCENTAGE OF INDEPENDENT ESTABLISHMENT RESPONDENTS
BELL OPERATING COMPANIES	78%
OTHER TELEPHONE SERVICE COMPANIES	9%
COMMUNICATIONS EQUIPMENT SUPPLIERS NOT SELLING CARRIER SERVICE	13%

NUMBER OF RESPONDENTS = 67

- The smaller respondents repeatedly said they prefer dealing with one company for both service and equipment. This attitude requires changing if interconnect sales efforts directed towards them are to be successful. This will be particularly difficult because, in spite of their cost consciousness, they do not have time to think about these kinds of services; they expect the phones to be there working for them. The owners and managers will have to be made aware of the available alternatives and benefits.

(3) Office Equipment Usage

- Advanced office equipment is used by 15% of the distribution group. This is comparatively high and is primarily due to the freight forwarders, a paper oriented group using word processing equipment of some type - at the 26% level.

- The applications for text editing equipment in this group are:

  - Contracts.

  - Tariffs.

  - General correspondence.

  - Accounting and statistical reports.

  - Procedure manuals.

- Copying equipment is an important item in the offices of small establishments companies. Other than a typewriter, it is frequently the only piece of office equipment. Overall in the group, 35% of the respondents use coated paper copiers and 69% use plain paper machines. Some companies use both and, as is pointed out in the industry sector reports, one group has a particularly high average number of copiers.

- Exhibit V-45 clearly illustrates the priorities of the small establishment respondents with respect to copier features. The "other" category is a mixture of features many of which are currently available but on higher priced machines and this is a wish for having them on lower cost equipment. The more frequently mentioned in this group are:

  - Service response.

  - Color.

  - Simplicity.

  - Economy.

c. <u>Needs And Plans For Improvement</u>

- Twenty-five percent of all respondents in this group indicated they will make improvements by buying or changing information handling equipment or services during the coming two years.

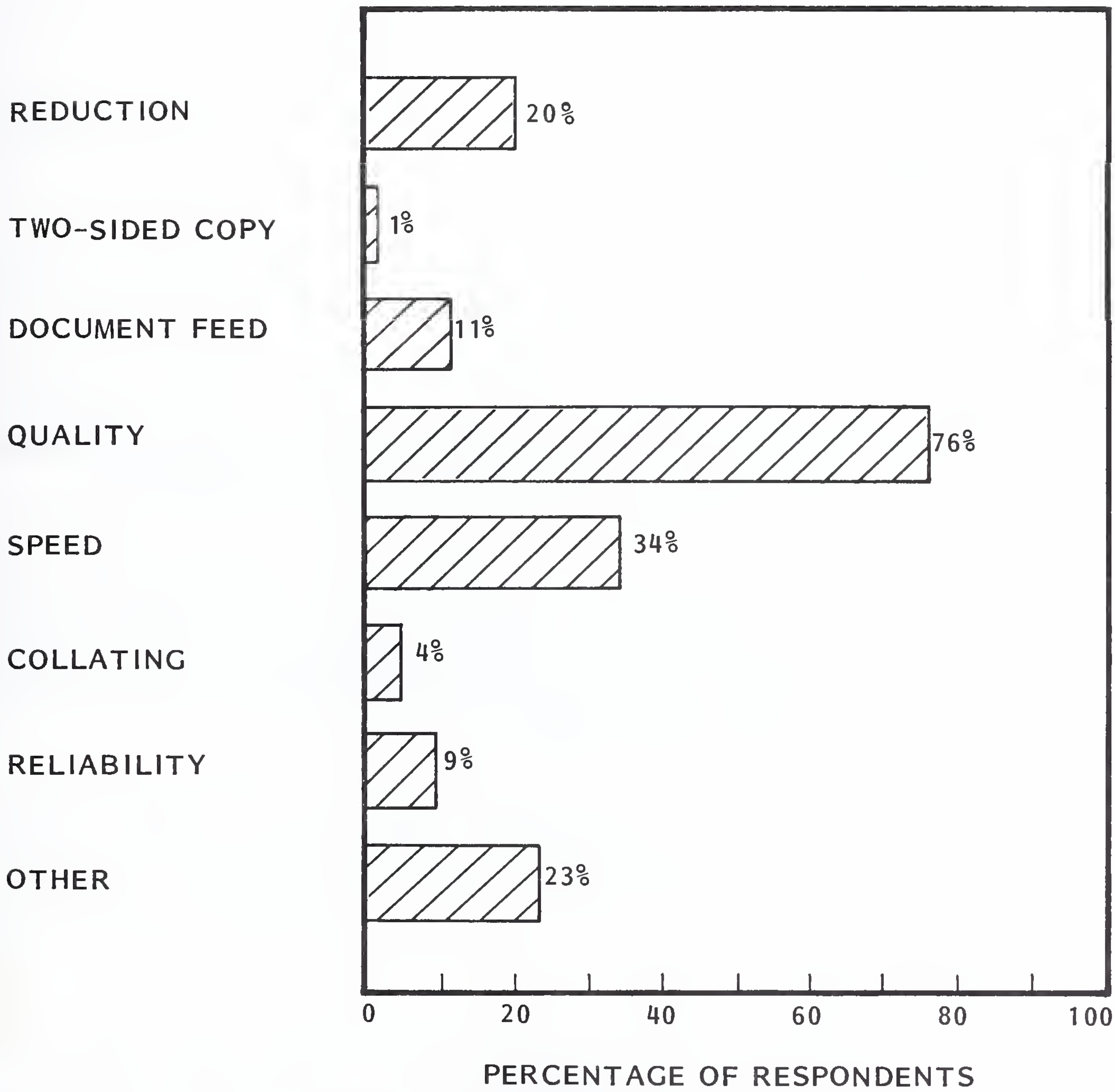
  - Forty-four percent will be making computer related changes.

  - Thirty-two percent will make office equipment changes.

  - Forty-four percent will be improving their telephone systems.

EXHIBIT V-45

DISTRIBUTION GROUP -
COPIER FEATURES DESIRED



NUMBER OF RESPONDENTS = 103

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO DESIRABILITY OF MULTIPLE FEATURES

(1) EDP

- While 29% of the independent respondents who answered the computer changes question do not plan to make any changes in their computer set-up in the next two years, 71% do and when this is added to the group using services and those not automated a substantial market exists for equipment and services. Exhibit V-46 just shows those independent respondents interested in changing or modifying their current equipment. Added to this must be those who will be adding new applications to their existing systems.

- There are differences between industries in the distribution group and also differences by establishment size.

  - The medium size (20-99 employees) wholesalers plan to make more computer related changes than any other group.

  - The large wholesalers and freight forwarders will be adding computer communications facilities, adding application programs and going to outside computer service vendors for special applications.

  - A modest number of establishments in all industries in the 1-19 employee group will be making computer related changes. These range from having a consultant look into selecting a computer to expanding terminal service to Hawaii.

- When going to buy a computer system what will these establishment owners/managers be looking for? Three factors, as shown in Exhibit V-47, rated very high (over 70% of the maximum potential) by the independent respondents.

  - Vendor reputation is very important. Small establishments do not have the resources to investigate each vendor thoroughly. When a vendor is suggested to a owner or manager of a small concern the first remark usually is "What do you know about him?"

EXHIBIT V-46

DISTRIBUTION GROUP - PLANS TO CHANGE OR MODIFY CURRENT COMPUTER SYSTEM DURING THE NEXT TWO YEARS - INDEPENDENTS

PLANS	PERCENTAGE OF INDEPENDENT ESTABLISHMENT RESPONDENTS
ADD A COMPUTER	6%
MODIFY PRESENT COMPUTER	35
REPLACE PRESENT COMPUTER WITH A NEW COMPUTER	21
REPLACE PRESENT COMPUTER WITH A COMPUTER SERVICE	9
NO PLANNED CHANGE	29

NUMBER OF RESPONDENTS = 34

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO RESPONDENTS PLANNING MULTIPLE CHANGES

EXHIBIT V-47

DISTRIBUTION GROUP - IMPORTANCE OF FACTORS IN CHOOSING COMPUTERS - INDEPENDENTS

FACTORS	RATING
SUPPORT	1.9
AVAILABLE SOFTWARE	1.8
DELIVERY SCHEDULE	2.1
VENDOR REPUTATION	2.1
AVAILABLE HARDWARE	2.0
COMPATIBILITY WITH LARGER SYSTEMS	2.2

RATINGS: VERY IMPORTANT = 3
SOMEWHAT IMPORTANT = 2
SLIGHTLY IMPORTANT = 1
UNIMPORTANT = 0

- Compatibility with larger systems is very important to people who have systems or who are sophisticated enough to have plans for future growth.

- The ability to deliver when scheduled is important to insure a "good" installation and a "satisfied" customer. The other factors while important were not emphasized as much as these three in the distribution industries.

(2) Communications

- The small establishment section of the retail industry seems to be satisfied with their telephone equipment and services. They did not indicate problems and therefore will make minimal changes during the next two years. However, there exists a more than minimal usage of interconnect equipment in this industry and the changes will be in this area.

- The freight forwarders and wholesalers complain most about poor long distance service, especially the smaller establishments, but do not plan to do much about it because they feel, "at the mercy of the carriers."

- Freight forwarders plan to be most active during the coming two years. There plans include:

  - Adding WATS service.

  - Getting TELEX.

  - Going Centrex.

  - Buying a new phone system.

  Several have recently bought new telephone systems.

- The wholesalers are in the middle. Many have purchased new systems already and a small number are looking into replacing their "old switchboards."

- The opportunities that exist in this group for new systems are interesting. A higher than expected portion of the sample in both freight forwarders and wholesalers indicate that they expect to move to new quarters within two years. They will all require new telephone service and this is a prime time to acquaint them with the economics of new and expanded equipment and services - before the new location is actually occupied.

(3) Office

- Respondents indicated that they will buy new typewriters, including electronic typewriters, word processors and copiers during the next two years. These responses came only from the freight forwarders and wholesalers. Retailers did not indicate changes were imminent. Both small and large size establishments said they were going to buy typewriters and copiers. The medium size establishments were beginning to explore word processing, but were not sure they knew how it could be of help.

- Vendors of word processing equipment who want to direct sales efforts to the smaller firms must develop industry specific sales aids aimed at informing potential clients very specifically how the system will improve productivity. These sales aids must be developed with the small companies in mind because the paper work differs significantly. Large companies have paperwork just because they are large. Small company paperwork is much more related to the primary reason for the firm's existence.

d. <u>Budgeting</u>

- In the distribution group, about 87% of the independent respondents budget for information handling equipment and services individually, rather than include it as a bulk item dependent upon some unrelated measure such as revenue (Exhibit V-48). Surprisingly, this seems to be invariant with the size of the

EXHIBIT V-48

DISTRIBUTION GROUP - BASIS FOR BUDGETING FOR INFORMATION HANDLING EQUIPMENT AND SERVICES - INDEPENDENTS

BUDGETING BASIS	PERCENTAGE OF INDEPENDENT ESTABLISHMENT RESPONDENTS
PERCENT OF REVENUE	8%
LAST YEAR'S CONSUMABLE COST	3
HANDLE ON AN INDIVIDUAL BASIS	87
OTHER	3

NUMBER OF RESPONDENTS = 61

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE METHODS

establishment. It is the usual case that smaller companies budget all items as a percent of revenue simply because it is less time consuming than planning on an individual basis. Retail establishments very frequently budget on a percent of revenue basis. Branches, especially small ones, frequently have their budget sent down from the parent company.

- The preponderance of budgeting by individual item means that a salesperson can aim to have specific equipment itemized in the capital budget or become a line item in the current expense budget. If most budgeting were done some other way, it would be difficult to sell when money would be agglomerated into one pool of funds, and it would be more difficult to sell expensive innovative products.

2. TRANSPORTATION - FREIGHT FORWARDING

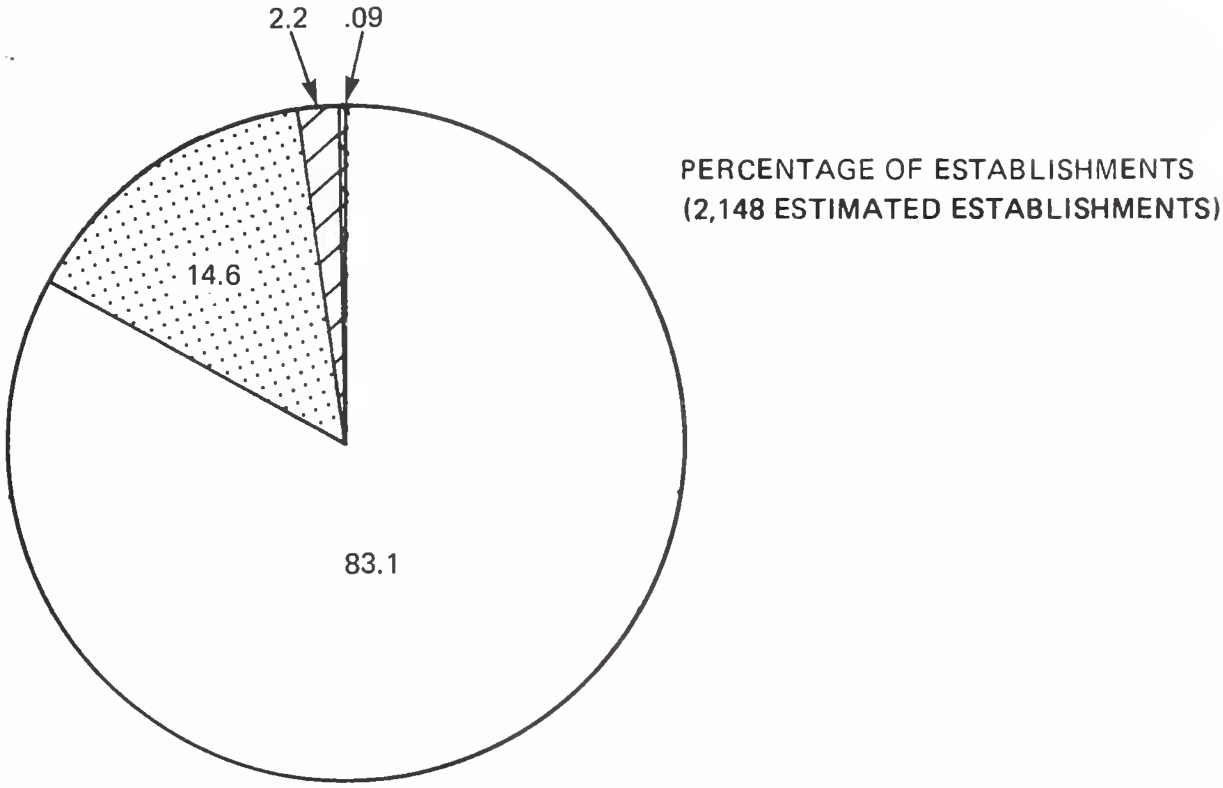
a. Industry Characteristics

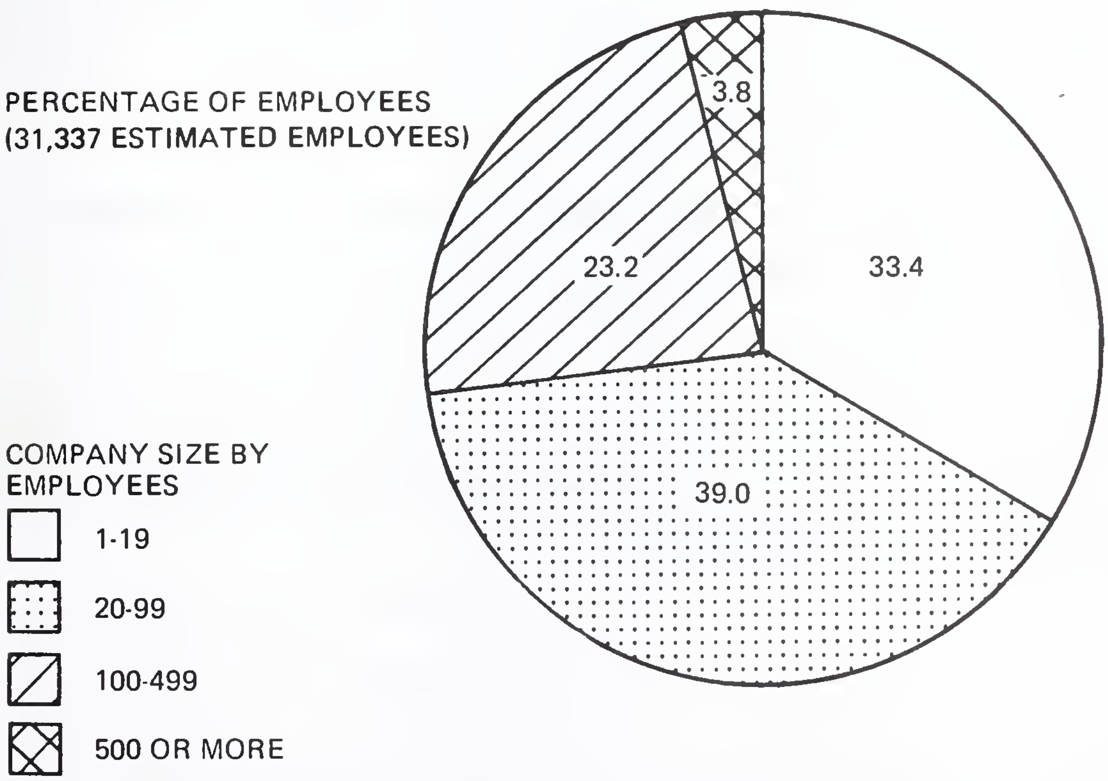
- Freight forwarders are primarily engaged in undertaking the transportation of goods from shippers to receivers for a charge covering the entire transportation. They in turn make use of the services of other transportation establishments to effect the delivery. A forwarding establishment pays transportation charges to the other businesses as part of its cost of doing business and assumes responsibility for delivery of the merchandise. There are no direct relations between the shipper and the transportation establishment performing the movement. Foreign freight forwarders assume responsibility for air transportation but not for ocean transportation of the freight. Establishments which merely arrange for dealing between shippers and transportation companies but accept no responsibility for delivery or the merchandise are not part of this industry but are classified under, "arrangement of transportation."

- Little statistical information is available for the freight forwarding industry. The data on Exhibit V-49 is extrapolated from 1976 data. Based upon these estimates the following average number of employees was derived:

EXHIBIT V-49

STRUCTURE OF THE FREIGHT FORWARDING INDUSTRY
(1976 DATA)





Company Size By Employees	Employees/Establishment
1-19	6
20-99	39
100-499	152

- In this industry, branches that do freight forwarding primarily appear to be part of larger companies that are engaged in the actual movement of merchandise. The independent freight forwarders are customs clearing operations, shipping document preparers, and in general, more overseas oriented than the branches.

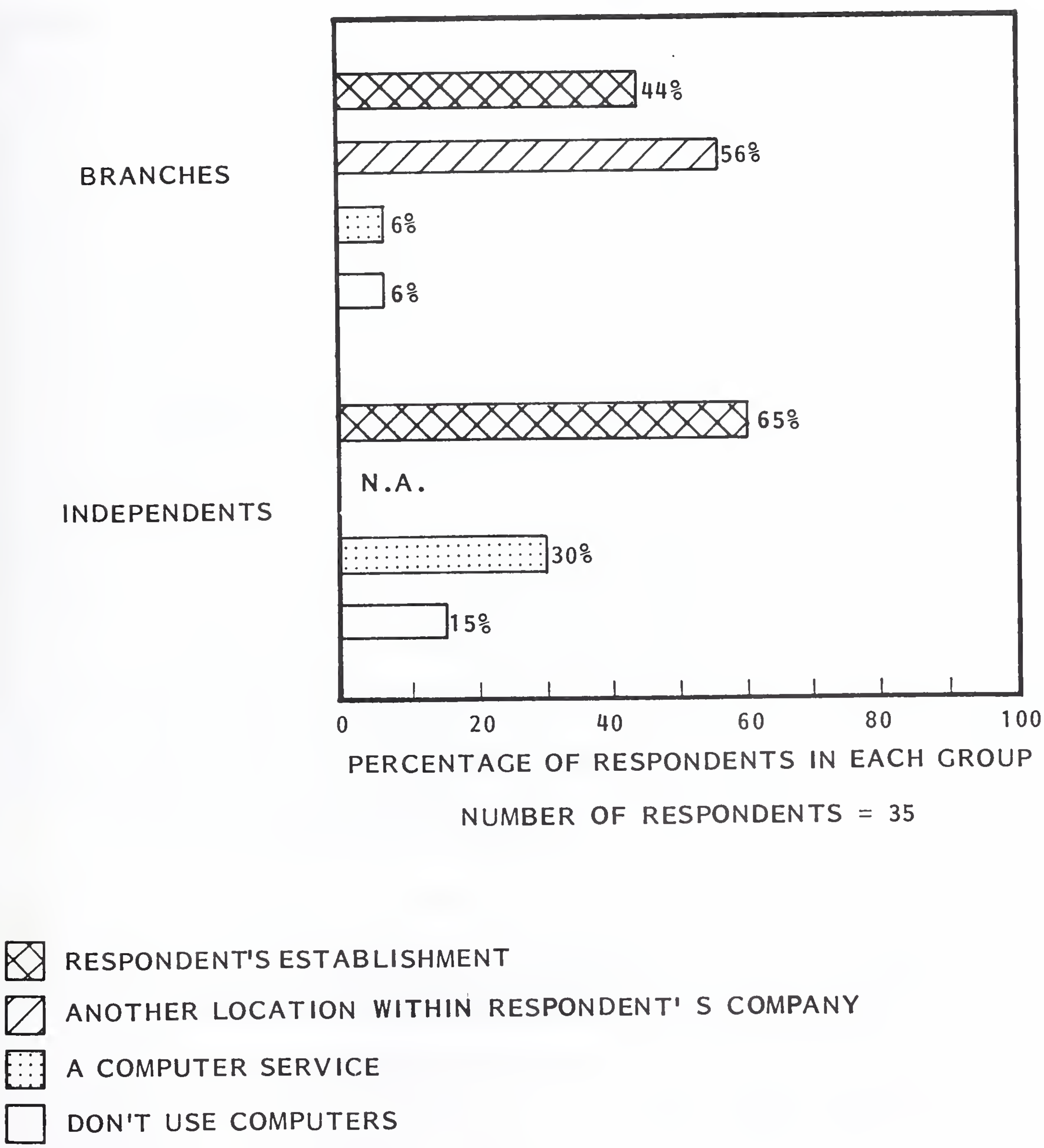
b. Computer Equipment And Services Usage

- This industry is a paperwork industry and the high usage of computers, 94% of the branches and 85% of the independent companies, is to be expected (see Exhibit V-50). In five years all of the branches will be using computers. While the same percentage of independent companies will not be using computers, those having their own system will grow from 65% to 75%. As Exhibit V-51 illustrates, the growth in on-site computers will be at the expense of outside computer service companies. The use of in-house service centers is not expected to change. The use of intra company computer services distinguishes the branches from the independent establishments. This use will not change during the coming five years.

- Application development is another way to separate the branches of large corporations from the independent freight forwarders. Eighty percent of the branches have automated the standard accounting functions as compared to about 60% of the independents. Order entry is automated about 1.5 times as frequently in branches as independents and credit authorization about four times as often. There is no application area that has penetrated the independents more than the branches.

EXHIBIT V-50

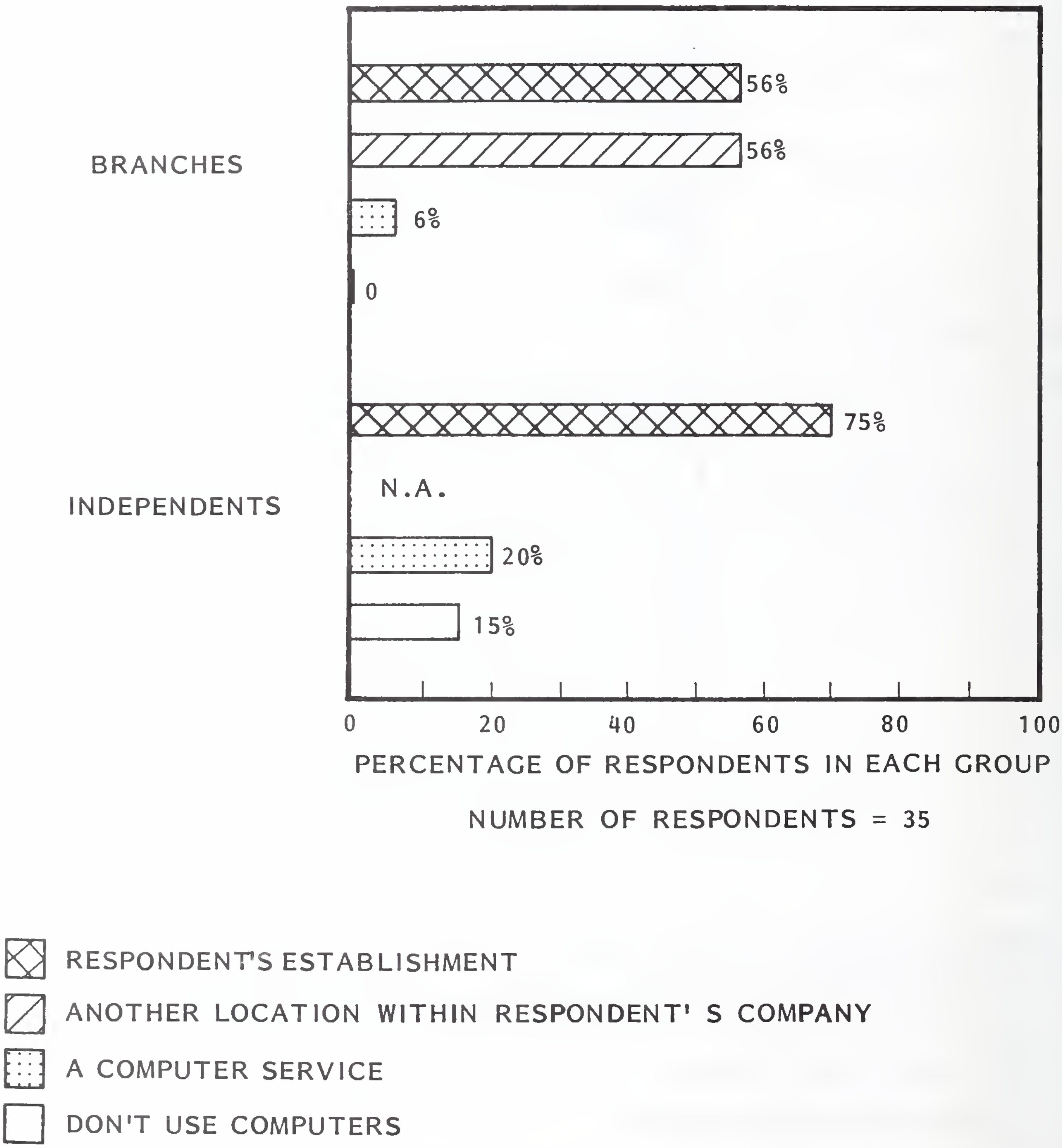
FREIGHT FORWARDING SECTOR - LOCATION OF COMPUTERS OR COMPUTER SERVICES USED BY RESPONDENTS
(1979)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

EXHIBIT V-51

FREIGHT FORWARDING SECTOR - LOCATION OF COMPUTERS OR COMPUTER SERVICES USED BY RESPONDENTS
(1984)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

- Comparing Exhibits V-52 and V-53 shows that that very little change will occur in application status between 1979 and 1984. A few more independent companies will convert their accounting applications to computers by 1984. Some industry specific applications will be implemented in branches more so than in the independents. Those likely to be programmed include:

    - Freight forecasting.

    - Freight charge allocations.

    - Shipping line control.

- The languages used by the companies did not differ significantly between branches of large corporations and the independent freight forwarders. Exhibit V-54 shows the languages used by both kinds of establishments. Most organizations were either COBOL shops or RPG shops. Only one respondent used both COBOL and RPG. Most respondents that used more than one language used a high level general language combined with a proprietary language or with assembly language.

- The branches of large companies expressed needs for larger, more powerful computers. There was no negative comment concerning computers expressed by the branches. The independents had some negative feelings and did not so freely say that they were going to expand facilities during the next two years. A medium sized (20-99) branch felt it had outgrown its mini and needed a full blown system. Larger branches were going to on-line billing systems. The independents made comments such as:

    - Computer was not feasible - got rid of it.

    - Present machine does not have enough memory to do anything.

    - Need new computer to put billing on.

EXHIBIT V-52

FREIGHT FORWARDING SECTOR -
PERCENTAGE OF RESPONDENTS PERFORMING
APPLICATIONS - BRANCHES

APPLICATIONS	BRANCHES OF LARGE CORPORATIONS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MARKETING AND SALES			
ORDER ENTRY	13%	40%	47%
SALES ANALYSIS	13	47	53
CREDIT AUTHORIZATION	13	40	47
ACCOUNTING & FINANCE			
PAYROLL	0	100	100
BILLING	13	87	87
ACCOUNTS RECEIVABLE	13	80	80
ACCOUNTS PAYABLE	13	80	80
GENERAL LEDGER	13	80	80
OTHER ACCOUNTING/ FINANCE	0	7	7
DISTRIBUTION			
ORDER ALLOCATION	7	33	33
SHIPPING	7	33	33
STOCK REPLENISHMENT	7	27	27
OTHER DISTRIBUTION	0	27	27
PURCHASING			
INVENTORY CONTROL	0	53	53
RECEIVING	0	40	40

NUMBER OF RESPONDENTS = 15

EXHIBIT V-53

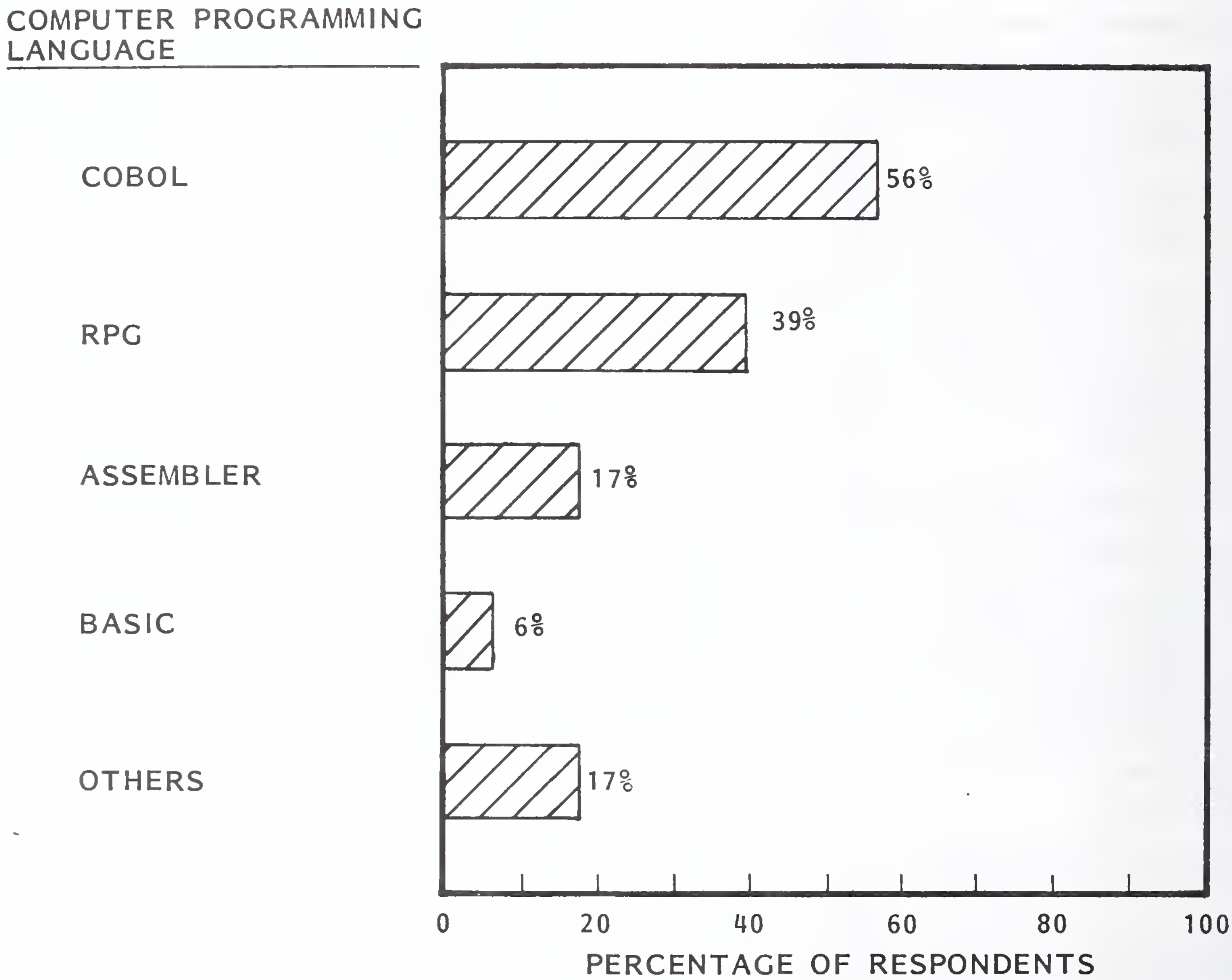
FREIGHT FORWARDING SECTOR -
PERCENTAGE OF RESPONDENTS PERFORMING
APPLICATIONS - INDEPENDENTS

APPLICATIONS	INDEPENDENT ESTABLISHMENTS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MARKETING AND SALES			
ORDER ENTRY	17%	28%	28%
SALES ANALYSIS	33	44	44
CREDIT AUTHORIZATION	11	11	11
ACCOUNTING & FINANCE			
PAYROLL	17	78	78
BILLING	39	56	61
ACCOUNTS RECEIVABLE	39	62	67
ACCOUNTS PAYABLE	33	67	72
GENERAL LEDGER	17	33	33
OTHER ACCOUNTING/ FINANCE	0	6	6
DISTRIBUTION			
ORDER ALLOCATION	6	28	28
SHIPPING	6	28	28
STOCK REPLENISHMENT	0	22	22
PURCHASING			
INVENTORY CONTROL	6	22	22
RECEIVING	0	22	22

NUMBER OF RESPONDENTS = 18

EXHIBIT V-54

FREIGHT FORWARDING SECTOR - COMPUTER PROGRAMMING LANGUAGES USED ON COMPUTERS INSTALLED AT RESPONDENTS' ESTABLISHMENTS



NUMBER OF RESPONDENTS = 18

NOTE: TOTALS MAY NOT EQUAL 100% DUE TO SOME RESPONDENTS USING MORE THAN ONE PROGRAMMING LANGUAGE

- No need (100-499 employee establishment).

- The opportunities lie in ferreting out where the small systems are and replacing them with larger systems. The standard accounting and marketing packages, packages with some customization for special paperwork involved in freight handling and customs clearance, will be necessary adjuncts to the hardware.

c. Communications Equipment

- Freight forwarding is a business of coordination and communication. As a group there is a high usage of PABXs (54%) and very high use of WATS lines (63%) and TELEX/TWX services (74%). As shown in Exhibit V-55 the differences between branches and independents show up in the use of inter-connect and facsimile equipment.

- WATS lines connected to privately owned telephone systems are the independents means of minimizing their voice communication costs. The branches also use WATS lines but they stay with the Bell System.

- The almost 30% usage of facsimile equipment (with the branches the usage is 44%) is unusual. The primary business of many freight forwarders is expediting the customs clearance process. Goods cannot clear customs without a bill of lading. Customs will accept a facsimile in place of a bill of lading, so the major client of a freight forwarder usually pays for the facsimile device so his shipments can clear customs with minimal delay. Other documents sent via Fax are operations information and general company reports.

- Several companies are/will be looking into new telephone systems in the next two years. One company is exploring the use of a microwave transmission system.

EXHIBIT V-55

FREIGHT FORWARDING SECTOR - COMMUNICATIONS EQUIPMENT AND SERVICES USED BY RESPONDENTS

(PERCENTAGE OF RESPONDENTS)

TYPE OF EQUIPMENT/SERVICE	INDEPENDENT ESTABLISHMENTS	BRANCHES OF LARGE CORPORATIONS
COMMUNICATIONS EQUIPMENT		
KEYSET	47%	44%
PABX	53	56
INTERCONNECT	26	0
FACSIMILE	16	44
COMMUNICATIONS SERVICES		
WIDE-AREA TELEPHONE SERVICE (WATS)	68%	56%
TELEX/TWX	74	75
LEASED LINES	5	6
NON-TELEPHONE COMPANY SUPPLIED SERVICES	0	0

NUMBER OF RESPONDENTS = 35

d. Office Equipment Usage

- Even though freight forwarding is a paper shuffling industry apparently there is little need among the smaller companies (99.9% of all freight forwarders) for the latest in text handling equipment. The larger independent companies are using more word processing than the branches. Of those companies that do not use this kind of equipment, the independents had negative attitudes while the branches were actively looking into getting a system.

- Word processing equipment is used for tariffs, export documents, and general repetitive forms.

- Copiers are the big item in the freight forwarder's office. Both types of firms average almost 2.5 copiers per company with the larger companies averaging 3.2 per company where the average number of employees is 152.

- Plain paper copiers (Exhibit V-56) account for 80% of the market. Twelve percent of the companies have both kinds of equipment. Many companies stated that during the next two years they will be looking for copying equipment. They will be looking primarily for quality output and overall reliability. Speed is important but not as important as the first two items.

3. WHOLESALE - NON-DURABLE GOODS

a. Industry Characteristics

- The primary functions of businesses in the wholesaling trade are selling merchandise to retailers, industrial, commercial, institutional, farm, and professional business users. In addition to selling, functions frequently performed include maintaining inventories, physically assembling, sorting, and grading goods in large lots, breaking bulk lots and redistributing in smaller lots, delivery, and refrigeration.

EXHIBIT V-56

FREIGHT FORWARDING SECTOR -
OFFICE EQUIPMENT USED BY RESPONDENTS
(PERCENTAGE OF RESPONDENTS)

TYPE OF EQUIPMENT	INDEPENDENT ESTABLISHMENTS	BRANCHES OF LARGE CORPORATIONS
ELECTRONIC TYPEWRITERS	26%	13%
STANDALONE WORD PROCESSORS	21	7
COATED PAPER COPIERS	42	19
PLAIN PAPER COPIERS	79	81
DUPLICATING EQUIPMENT	5	19
PRINT SHOP	0	0

NUMBER OF RESPONDENTS = 34

- Wholesaling is divided into two major groups - Durable goods and Non-Durable goods.

SIC		Establishments (1976)	Employees (1976)
50	Durable Goods	208,096	2,435,645
51	Non-Durable Goods	145,046	1,807,023
	Total-Wholesale	353,142	4,242,668

- The sector studied for this report is the Non-Durable Goods sector - SIC-51.

  - The Non-Durable Goods wholesaling industry is comprised of the following sub-industries:

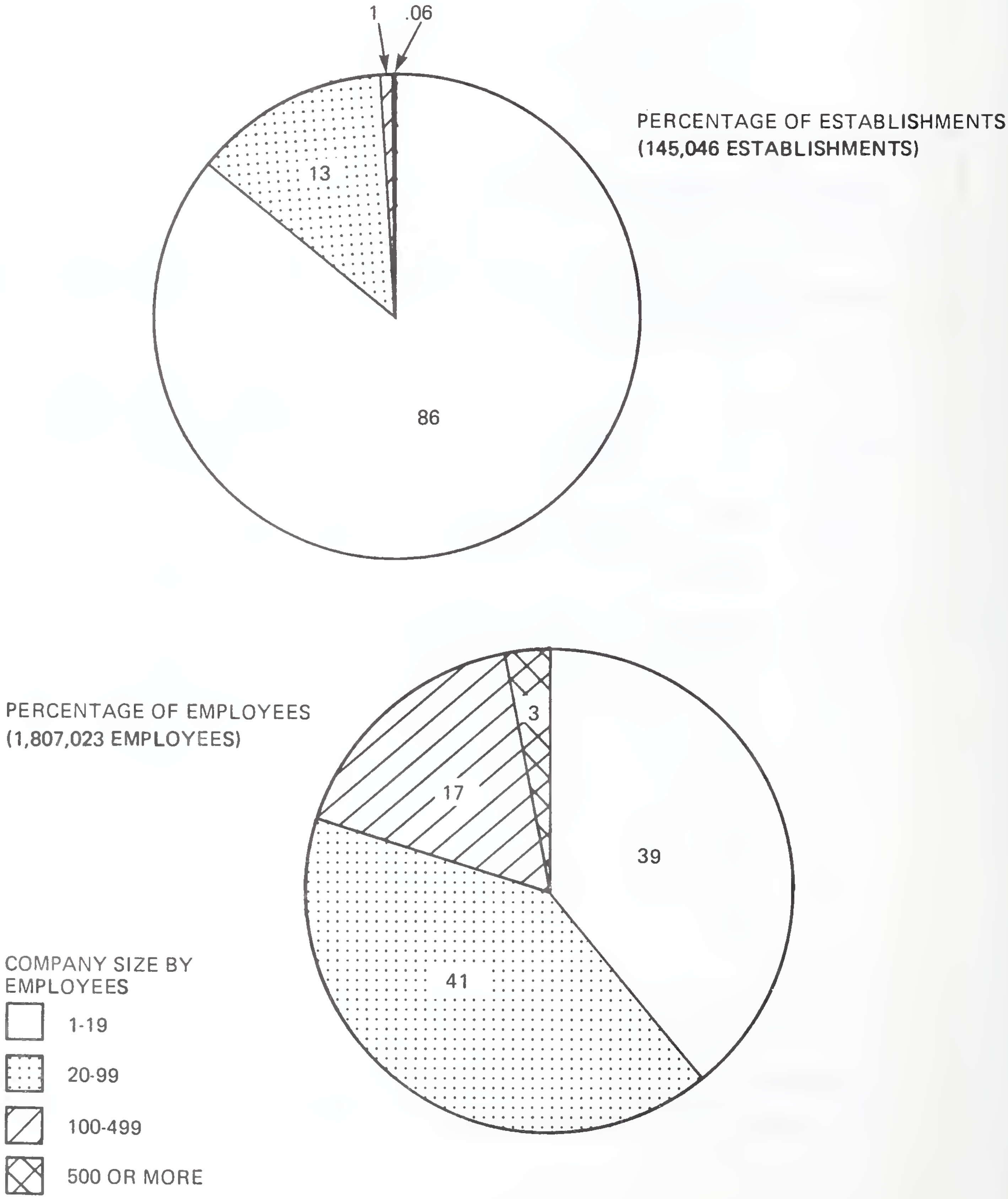
SIC	INDUSTRY	ESTIMATES NUMBER OF ESTABLISHMENTS 1976
511	Paper and Paper Products	10,528
512	Drugs, Drug Proprietaries And Sundries	3,472
513	Apparel, Piece Goods, And Notions	11,565
514	Groceries And Related Products	34,893
515	Farm Products Raw Materials	13,243
516	Chemical And Allied Products	6,760
517	Petroleum And Petroleum Products	20,468
518	Beer, Wine And Distilled Alcholic Beverages	6,380
519	Miscellaneous Non-Durable Wholesalers	37,231

- The small business contribution was 96% of the total revenue in 1976.

- The establishments and employees are broken down by company size in Exhibit V-57. Small establishments represent over 99% of all the businesses and 97%

EXHIBIT V-57

STRUCTURE OF THE WHOLESALE NON-DURABLE GOODS SECTOR
(1976)



of all the employees. The average number of employees/establishment in each size group is:

Size Group	Average Number of Employees
1-19	6
20-99	39
100-499	212

- This is an extremely diverse major SIC group. Men's apparel is grouped with fish and seafood. Dry goods, such as belts and buttons, are grouped with wet goods, such as beer and wine. The interviews were spread over the entire SIC by size and industry.

- The major thrust of this SIC group, irrespective of the particular industry or product, is buying in large quantities, inventorying, and then distributing in smaller quantities. This is reflected in their higher than average automation of applications in the purchasing and distribution area.

b. Computer Equipment And Services Usage

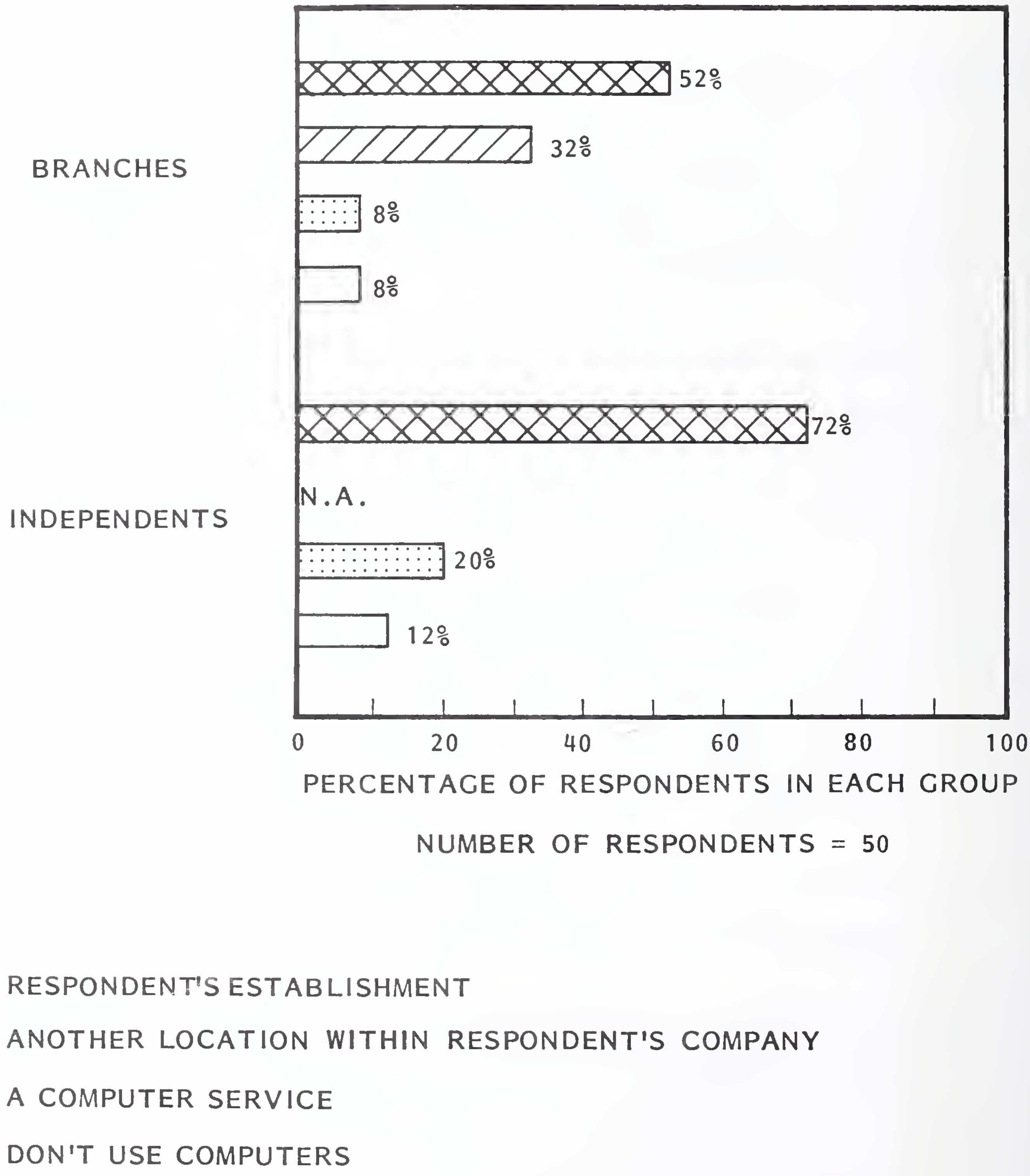
- Most branches and independent establishments have their own computers (Exhibit V-58). Independent establishments frequently use an outside computer service in addition to their own systems. Branches use other systems within their company in place of, or sometimes in addition to, their own systems.

- Almost the same percentage of branches and independents, 92% and 88% respectively, are involved with computers.

- By 1984 the use of in-house computers will grow by over 38% in branches of large companies and by 11% in independent establishments (Exhibit V-59).

EXHIBIT V-58

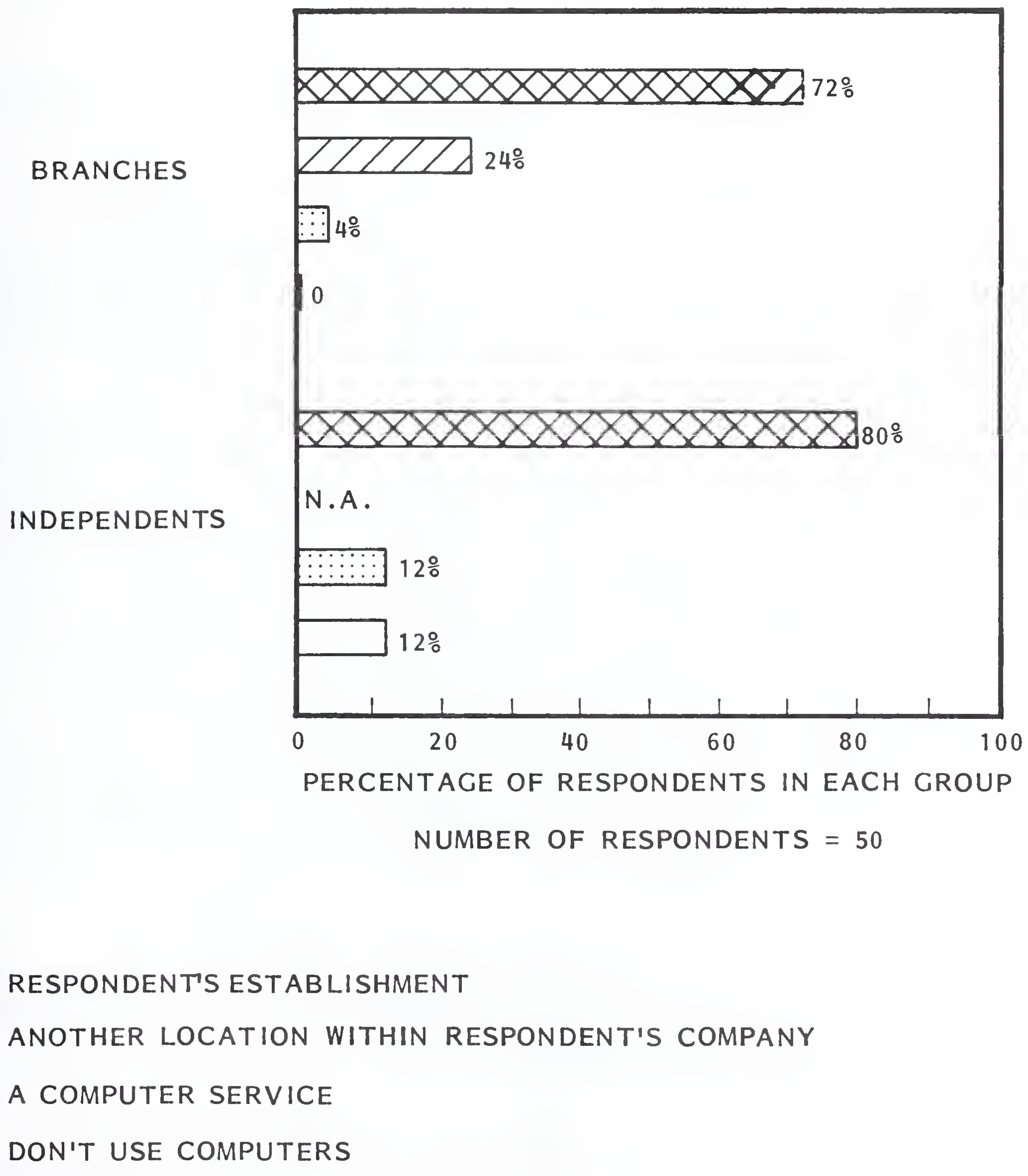
WHOLESALE NON-DURABLE GOODS SECTOR - LOCATION OF COMPUTERS OR COMPUTER SERVICES USED BY RESPONDENTS (1979)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

EXHIBIT V-59

WHOLESALE NON-DURABLE GOODS SECTOR -
LOCATION OF COMPUTERS OR COMPUTER SERVICES
USED BY RESPONDENTS (1984)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

- This growth in the branches' in-house equipment will come at the expense of in-house computer services and outside computer service companies. The growth in the independent's acquisition of systems will mean a loss to outside computer service companies.

- By 1984, all branches will be using computers in some way; but in the independent group the computer usage penetration level will remain at 88%, just the location of the system will shift.

- Fourteen percent of all the respondents currently use outside computer service companies. By 1984 this will shrink to 8%. The shift will be towards in-house computers as small systems become more affordable by small companies. The applications that the establishments are using the service company for are payroll, A/P, A/R, general ledger, and less frequently, order entry. Within the next five years, most of these will be standard packages on small systems.

- Branches of large companies show a higher degree of automation in the "standard" applications than do the independent companies. This is true in almost all application areas. The prime exceptions are in the general ledger and other accounting/finance programs. In these cases it is the parent company of the branches that handles general ledger and innovative financial programs. Excluding the two applications areas mentioned above, the branches automation level is 82% in the accounting and finance area (Exhibit V-60). Since "automation level" in an application area is without regard to the location of the computer, the growth will come in providing application packages to those branches that will be getting their own system, and in system improvements.

- In general the branches are more highly automated than the independents, (comparing Exhibits V-60 and V-61) which is probably due to the influence of the parent organization.

EXHIBIT V-60

WHOLESALE NON-DURABLE GOODS SECTOR -
PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS -
BRANCHES

APPLICATIONS	BRANCHES OF LARGE CORPORATIONS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MARKETING AND SALES			
ORDER ENTRY	4%	52%	57%
SALES ANALYSIS	26	69	78
CREDIT AUTHORIZATION	13	39	43
ACCOUNTING & FINANCE			
PAYROLL	9	91	100
BILLING	13	83	91
ACCOUNTS RECEIVABLE	17	83	91
ACCOUNTS PAYABLE	13	74	83
GENERAL LEDGER	4	13	17
DISTRIBUTION			
ORDER ALLOCATION	8	35	35
SHIPPING	17	43	43
STOCK REPLENISHMENT	4	26	26
PURCHASING			
INVENTORY CONTROL	22	52	57
RECEIVING	0	26	26

NUMBER OF RESPONDENTS = 23

EXHIBIT V-61

WHOLESALE NON-DURABLE GOODS SECTOR - PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS - INDEPENDENTS

APPLICATIONS	INDEPENDENT ESTABLISHMENTS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MARKETING AND SALES			
ORDER ENTRY	24%	40%	48%
SALES ANALYSIS	36	44	56
CREDIT AUTHORIZATION	32	32	40
ACCOUNTING & FINANCE			
PAYROLL	24	72	76
BILLING	24	72	80
ACCOUNTS RECEIVABLE	28	64	72
ACCOUNTS PAYABLE	36	56	64
GENERAL LEDGER	32	40	48
OTHER ACCOUNTING/ FINANCE	4	16	20
DISTRIBUTION			
ORDER ALLOCATION	32	24	28
SHIPPING	32	24	28
STOCK REPLENISHMENT	32	28	32
OTHER DISTRIBUTION	0	4	4
PURCHASING			
INVENTORY CONTROL	40	48	60
RECEIVING	32	28	36
OTHER PURCHASING	0	4	4

NUMBER OF RESPONDENTS = 25

- Neither branches nor independent wholesalers have automated or plan to automate applications that are not used by other industry groups. The industry specific applications for wholesalers are in the general categories of distribution and purchasing with specific applications of order allocation, stock replenishment, inventory control, and receiving. These functions are performed by all businesses. In wholesaling these functions are emphasized and more companies have automated them as compared with other groups where these functions play a less important role.

- Since the main application areas are standard business applications, standard business languages would suffice. Exhibit V-62 points out that 95% of the establishments that have a computer on-site use COBOL or RPG; i.e., standard business languages.

- The languages used indicate that these computer installations are centralized organizations with programmers rather than users doing the programming. The company using PL/I also has the largest mainframe (an IBM 370/148) of those interviewed in the wholesale sector.

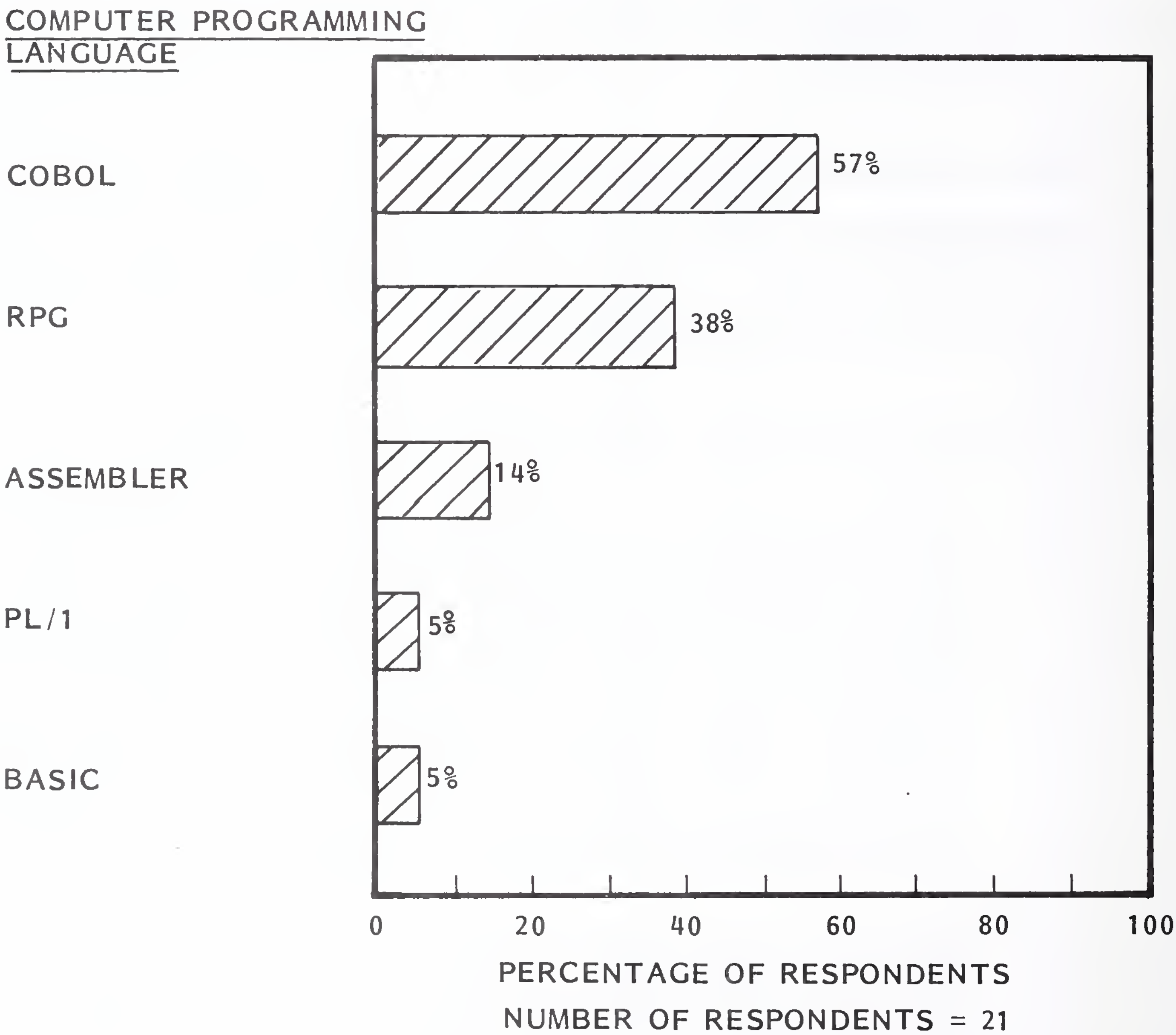
- There are two opportunities for vendors in this industry sector:

  - Growth will come from system expansion for additional applications. Many respondents who had systems commented that they just got them. As new users they will get the initial programs running and then be looking for new software packages and additional hardware. Some respondents have outgrown their system and have replaced it with a larger one. Some companies bought systems from a vendor who has since gone out of business and parts are no longer available. They are looking towards new systems from more stable vendors.

  - Since the industry does not require software packages that are unique, then it is worth investing in the development of complete packages for the wholesale industry because they, or smaller versions, can be sold to most other industries. Conversely, if a vendor has good software in

EXHIBIT V-62

WHOLESALE NON-DURABLE GOODS SECTOR - COMPUTER PROGRAMMING LANGUAGES USED ON COMPUTERS INSTALLED AT RESPONDENTS' ESTABLISHMENTS



NOTE: TOTALS MAY NOT EQUAL 100% DUE TO SOME RESPONDENTS USING MORE THAN ONE PROGRAMMING LANGUAGE

distribution and inventory control, then there are opportunities in the wholesaling industry.

- Service companies, who might be losing customers as the small systems monthly cost becomes substanially lower than the monthly bill from the service company, can retain the wholesalers as clients:

  . By providing the low cost system to them along with the software they are used to using.

  . By providing those software packages running on the system the customer may already have obtained elsewhere.

  . By lowering the cost to the customer of the services of the company so that they will compete with the in-house system.

- It is important to note that there seems to be no resistance towards computers in this industry sector. There is a reasonably high usage already and growth will come from current users expanding their use of computers in addition to the new user growth.

c. Communications Equipment

- Branches and independent companies use a variety of communications equipment and services. Neither use leased lines, but they both use WATS, Telex/TWX, Facsimile and interconnect equipment and services. The branches tend to use PABXs more than the independents. This is probably due to their parent-branch relationship (Exhibit V-63).

- The facsimile equipment in branches was used for communications between branches and the home office. The independents used the Fax devices for communicating with major suppliers and major customers. The home office of the branches may use the Fax equipment in the same way that the independent do, but the branches used it primarily for internal communications.

EXHIBIT V-63

WHOLESALE NON-DURABLE GOODS SECTOR -
COMMUNICATIONS EQUIPMENT AND SERVICES USED BY RESPONDENTS
(PERCENTAGE OF RESPONDENTS)

TYPE OF EQUIPMENT/SERVICE	INDEPENDENT ESTABLISHMENTS	BRANCHES OF LARGE CORPORATIONS
COMMUNICATIONS EQUIPMENT		
KEYSET	80%	44%
PABX	20	56
INTERCONNECT	4	16
FACSIMILE	12	8
COMMUNICATIONS SERVICES		
WIDE-AREA TELEPHONE SERVICE (WATS)	52	48
TELEX/TWX	28	36
LEASED LINES	8	8
NON-TELEPHONE COMPANY SUPPLIED SERVICES	4	0

NUMBER OF RESPONDENTS = 50

- Fourteen percent of the respondents expressed dissatisfaction with the way the current system operates or did not like the feeling of being "at the mercy of" a Bell telephone company. Most of these respondents will be looking to alternate communications companies both for service and equipment.

d. Office Equipment Usage

- In the wholesaling non-durable good industry sector very little advanced office equipment is used by the small establishments. One respondent -the largest independent company in the group - had a word processor but got rid of it because it was not the proper machine for the application. Exhibit V-64 shows this lack of penetration by any sort of equipment above a typewriter.

- Both branches and independent companies included very little about text editors in their list of needs for the next two years. Many thought two years was too far away to think about, while others are contemplating "adding another phone" or "switching to Selectrics."

- Copier speed improvement was cited several times as being an important requirement for the future. Faster machines are available but not at a price the small companies can afford. Some of the smaller size respondents were not aware that some of the newer copiers now available would provide a reasonable speed increase at a very minor increase in cost. The companies are in the 1-19 employees class and are most likely not visited by direct salespeople.

4. RETAIL - FURNITURE, HOME FURNISHINGS AND EQUIPMENT STORES

a. Industry Characteristics

- Retail trade companies sell merchandise to the general public for personal or household consumption. They are classified according to the lines of commodities sold such as groceries, hardware, etc.

EXHIBIT V-64

WHOLESALE NON-DURABLE GOODS SECTOR - OFFICE EQUIPMENT USED BY RESPONDENTS

(PERCENTAGE OF RESPONDENTS)

TYPE OF EQUIPMENT	INDEPENDENT ESTABLISHMENTS	BRANCHES OF LARGE CORPORATIONS
ELECTRONIC TYPEWRITERS	0	8%
STANDALONE WORD PROCESSORS	4%	0
COATED PAPER COPIERS	36	40
PLAIN PAPER COPIERS	64	60
DUPLICATING EQUIPMENT	4	0
PRINT SHOP	4	0

NUMBER OF RESPONDENTS = 50

- The retail trade division is broken into seven major groups:

SIC	Description	Establishments (1976)	Employees (1976)
52	Building Materials, Hardware, Mobile Homes	61,681	441,837
53	General Merchandise Stores	41,219	1,923,939
54	Food Stores	162,010	1,930,939
55	Automotive Dealers And Service Stations	229,257	1,727,271
56	Apparel And Accessory Stores	112,089	834,315
57	Furniture, Home Furnishings And Equipment Stores	81,119	492,301
58	Eating And Drinking Places	272,633	3,447,070
59	Miscellaneous Retail	246,595	1,647,405
	Total Retail Trade	1,206,603	12,445,077

- Retail trade revenues will be over $850 billion in 1979.

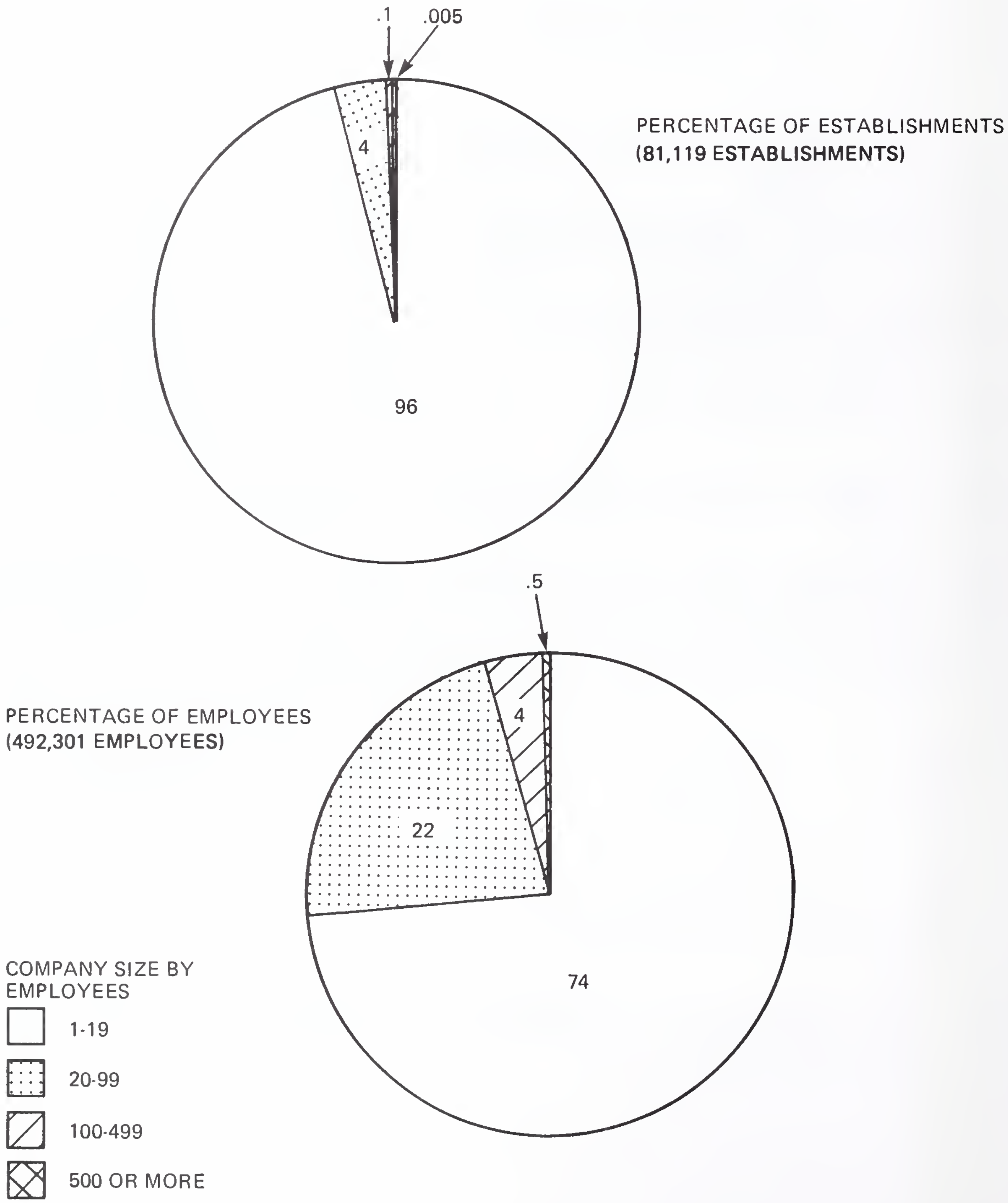
- The sector chosen for more detailed study is SIC 57 - Furniture, Home Furnishings and Equipment Stores. The sales in the SIC under detailed study totaled $37 billion in 1976 from the following contributions:

SIC	Description	1976 Estimated Sales In Billions of Dollars
571	Furniture And Home Furnishing Stores	$23.3
572	Household Appliance Stores	5.6
573	Radio, TV, and Music Stores	8.0

- The average number of employees by size of company (derived from Exhibit V-65) in this industry group is:

EXHIBIT V-65

STRUCTURE OF THE RETAIL FURNITURE INDUSTRY (1976 DATA)



Company Size By Employees	Employees/Company
1-19	5
20-99	35
100-499	157

- Sales per employee for this industry average $93,000.

b. Computer Equipment And Services Usage

- On an overall basis almost 75% of the respondents are using computers or computer services. Branches of large companies are more heavily involved than are the independents (Exhibit V-66), with about the same percentage having their own systems.

- Exhibits V-66 and V-67 when compared show very little increases in the use of computers or service centers. Very little change in this area of any kind during the coming five years can be projected.

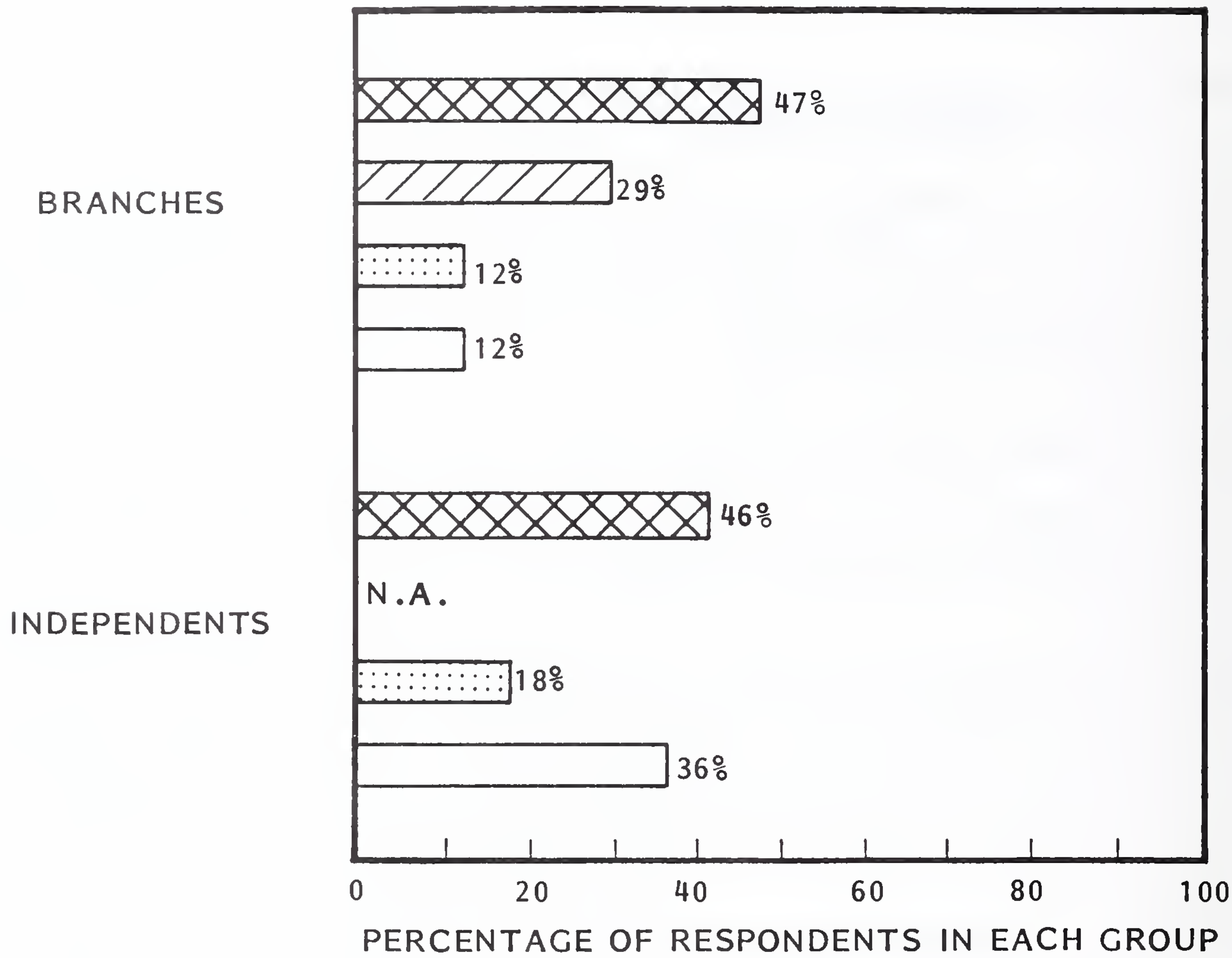
- The applications (Exhibits V-68 and V-69) for both branches of large companies and independent small establishments show that the standard marketing and accounting applications are automated by 50-65% of all the companies. There are two important areas of differences between the two establishment types:

  - The independents have automated the sales analysis function to a much greater extent than the branches because the branches have that done on the corporate level.

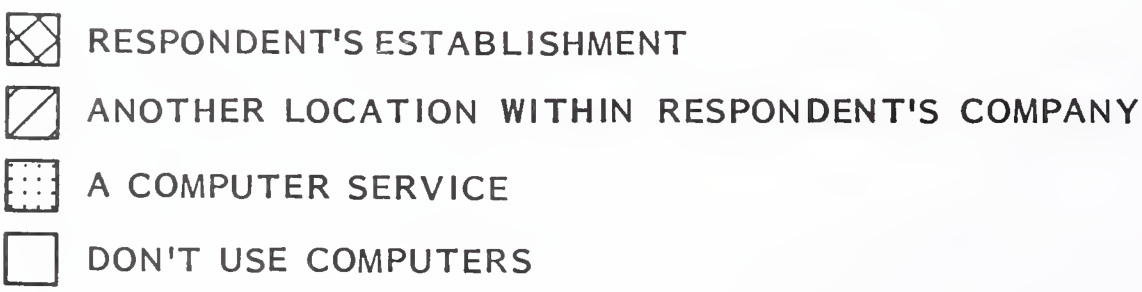
  - The distribution functions of order allocation, shipping and stock replenishment are much more frequently automated by the branches than by the independents due to the parent organization requirements.

EXHIBIT V-66

RETAIL FURNITURE SECTOR - LOCATION OF COMPUTERS OR COMPUTER SERVICES USED BY RESPONDENTS (1979)



NUMBER OF RESPONDENTS = 39

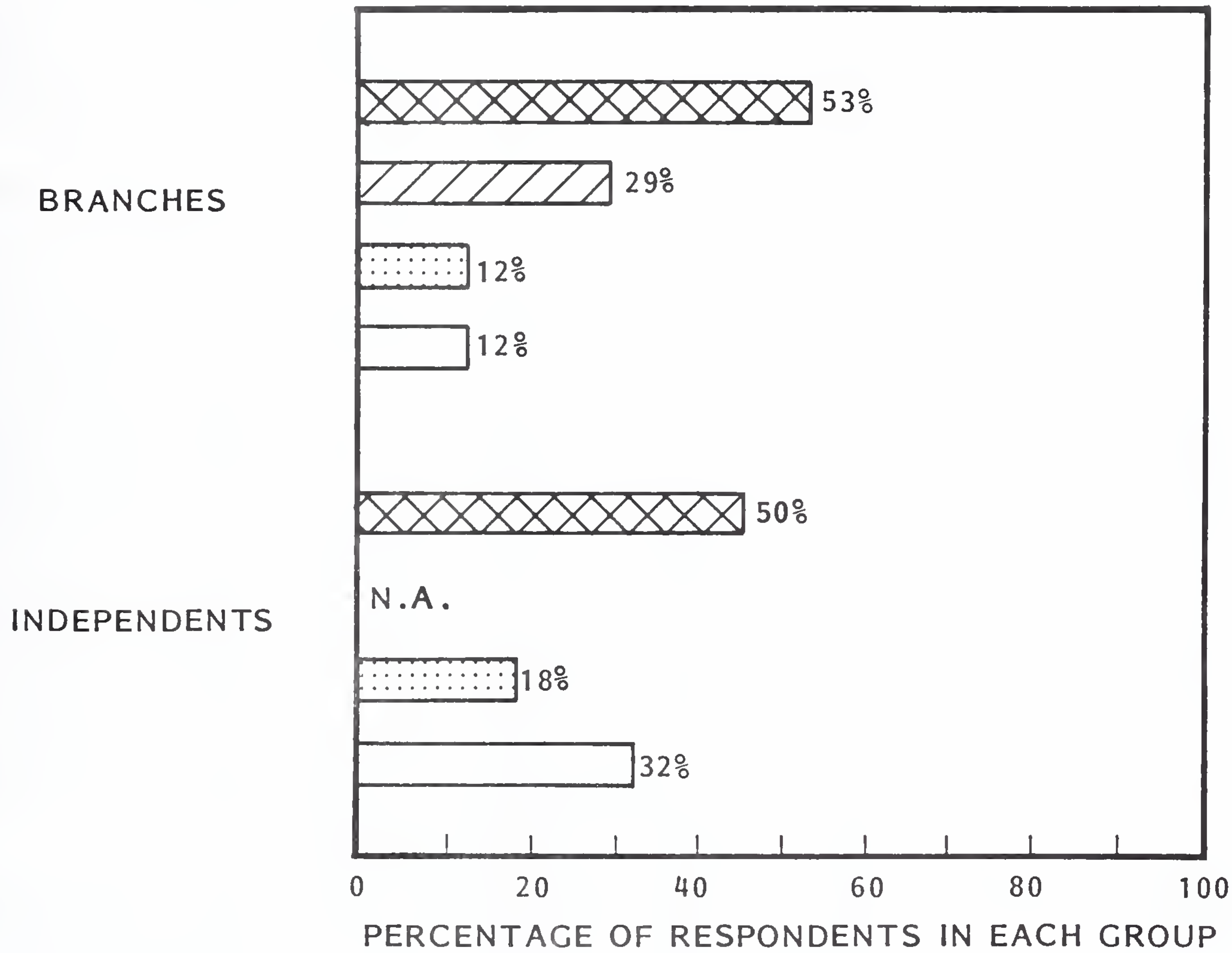


NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

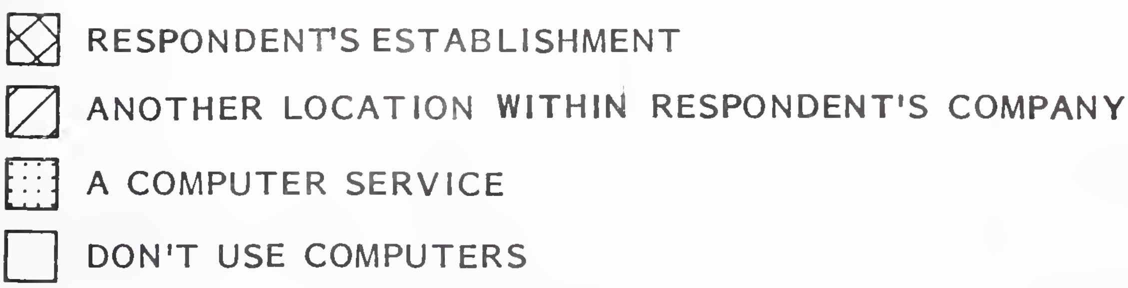
EXHIBIT V-67

RETAIL FURNITURE SECTOR - LOCATION OF COMPUTERS OR COMPUTER SERVICES USED BY RESPONDENTS

(1984)



NUMBER OF RESPONDENTS = 39



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

EXHIBIT V-68

RETAIL FURNITURE SECTOR - PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS - BRANCHES

APPLICATIONS	BRANCHES OF LARGE CORPORATIONS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MARKETING AND SALES			
ORDER ENTRY	31%	50%	50%
SALES ANALYSIS	44	19	19
CREDIT AUTHORIZATION	31	25	25
ACCOUNTING & FINANCE			
PAYROLL	25	69	69
BILLING	38	56	56
ACCOUNTS RECEIVABLE	31	63	63
ACCOUNTS PAYABLE	31	63	63
GENERAL LEDGER	31	50	50
DISTRIBUTION			
ORDER ALLOCATION	25	31	31
SHIPPING	19	25	25
STOCK REPLENISHMENT	19	31	31
PURCHASING			
INVENTORY CONTROL	31	50	50
RECEIVING	31	31	31
OTHER PURCHASING			
BACK ORDERS	0	6	6

NUMBER OF RESPONDENTS = 16

EXHIBIT V-69

RETAIL FURNITURE SECTOR - PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS - INDEPENDENTS

APPLICATIONS	INDEPENDENT ESTABLISHMENTS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MARKETING AND SALES			
ORDER ENTRY	33%	38%	48%
SALES ANALYSIS	52	48	57
CREDIT AUTHORIZATION	48	38	48
ACCOUNTING & FINANCE			
PAYROLL	38	62	67
BILLING	48	52	57
ACCOUNTS RECEIVABLE	48	52	57
ACCOUNTS PAYABLE	48	52	57
GENERAL LEDGER	38	52	57
DISTRIBUTION			
ORDER ALLOCATION	19	10	19
SHIPPING	19	10	19
STOCK REPLENISHMENT	10	10	19
PURCHASING			
INVENTORY CONTROL	52	38	48
RECEIVING	43	24	33

NUMBER OF RESPONDENTS = 21

- The preponderance of RPG users shown in Exhibit V-70 points up the report orientation of the industry and the lack of sophistication of the computer users among the retail furniture companies.

- The whole flavor derived from the exhibits is one of "we've gone about as far as we can go." In short, very little growth during the next five years in either systems or software. The biggest growth area appears to lie with the independent companies increasing automation of the distribution functions. The comments from the respondents emphasize the attitudes that:

  - They are too small to be interested in getting computers.

  - It is easier to do some functions manually than by computer.

  - Computers are confusing.

- Unless a vendor has had success in the industry or for some other reason has a good reputation in the sector it is a area where not much money should be risked.

c. <u>Communications Equipment</u>

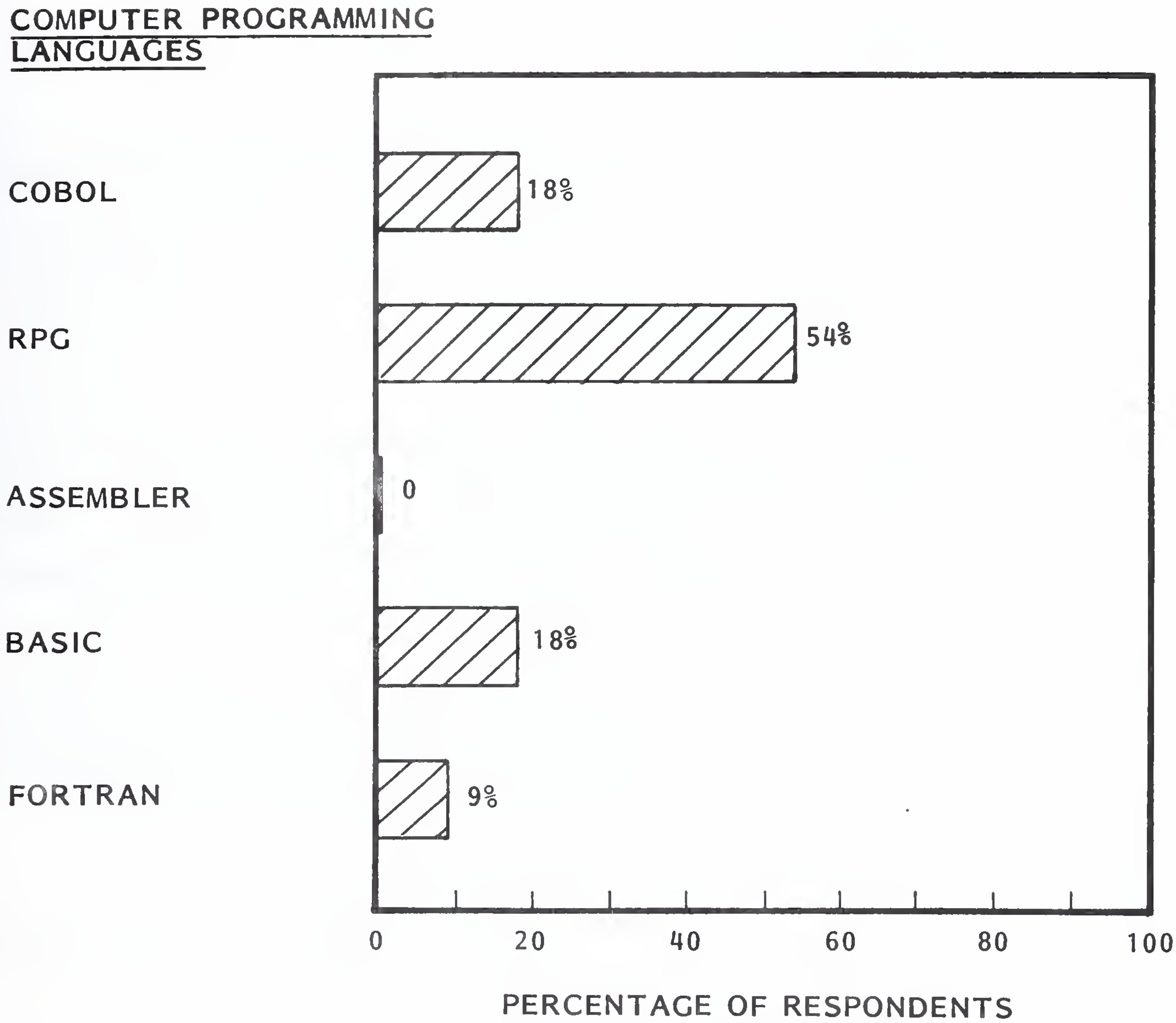
- Of the 23% of the respondents that used PABXs, 78% were in the largest size category (100-499 employees), with the independents having the predominate amount. The remaining two PABXs were located in the smallest branch offices and were used to handle ten phones with five lines in one case and six phones on five lines in the second case. In the more usual instance the PABX handled 20-60 phones switched between 4 to 50 trunk lines.

- The companies using interconnect equipment reported that it is much less expensive than leasing from the various telephone companies.

- Facsimile equipment had minimal usage by any of the companies in the retail sector.

EXHIBIT V-70

RETAIL FURNITURE SECTOR - COMPUTER PROGRAMMING LANGUAGES USED ON COMPUTERS INSTALLED AT RESPONDENTS' ESTABLISHMENTS



NUMBER OF RESPONDENTS = 11

NOTE: TOTALS MAY NOT EQUAL 100% DUE TO SOME RESPONDENTS USING MORE THAN ONE PROGRAMMING LANGUAGE

- Branches of large companies used WATS lines and TELEX/TWX services four times as frequently as the independent companies. The big usage is for interbranch and other intracompany communications (Exhibit V-71).

- Leased lines were utilized by the independent companies surprisingly more frequently than by the branches whom one might expect to have a company leased line network.

- Only one respondent expressed interest in a new telephone system during the next two years.

d. Office Equipment Usage

- Although every establishment studied in this industry had a typewriter, that is about all the office equipment they did have. Company size or organizational scheme did not affect their non-usage of advanced office equipment. In the smaller companies, 60% did not use a copier. Some expressed interest but thought it would be too expensive.

- Branch use of plain paper copiers compared with their use of coated paper copiers (88% versus 6%) and compared with the independents use of plain paper copiers (88% versus 41%) is the most significant statistic in the office equipment area (see Exhibit V-72). No particular reason was given for the preference.

- The lack of copier use by 60% of the small firms (1-19 employees) can be considered a marketing opportunity for those vendors having very low cost reliable equipment.

EXHIBIT V-71

RETAIL FURNITURE SECTOR - COMMUNICATIONS EQUIPMENT AND SERVICES USED BY RESPONDENTS (PERCENTAGE OF RESPONDENTS)

TYPE OF EQUIPMENT/SERVICE	INDEPENDENT ESTABLISHMENTS	BRANCHES OF LARGE CORPORATIONS
COMMUNICATIONS EQUIPMENT		
KEYSET	73%	76%
PABX	27	24
INTERCONNECT	18	6
FACSIMILE	0	6
COMMUNICATIONS SERVICES		
WIDE-AREA TELEPHONE SERVICE (WATS)	5%	47%
TELEX/TWX	9	24
LEASED LINES	14	0
NON-TELEPHONE COMPANY SUPPLIED SERVICES	0	0

NUMBER OF RESPONDENTS = 39

EXHIBIT V-72

RETAIL FURNITURE SECTOR -
OFFICE EQUIPMENT USED BY RESPONDENTS
(PERCENTAGE OF RESPONDENTS)

TYPE OF EQUIPMENT	INDEPENDENT ESTABLISHMENTS	BRANCHES OF LARGE CORPORATIONS
ELECTRONIC TYPEWRITERS	9%	6%
STANDALONE WORD PROCESSORS	0	0
COATED PAPER COPIERS	55	6
PLAIN PAPER COPIERS	41	88
DUPLICATING EQUIPMENT	0	6
PRINT SHOP	0	0

NUMBER OF RESPONDENTS = 39

D. FINANCE GROUP

1. ANALYSIS BY ESTABLISHMENT SIZE

a. Demographics

- The establishments classified by the Federal Government as being in the Finance, Insurance and Real Estate sector of the economy have a total of just under 400,000 establishments employing over 4.4 million people. The two sectors, Savings and Loan Associations and Insurance Service Organizations that constitute the SES Finance Group contain 21.2% of the establishments employing 8.3% of the people.

- In general the SES Finance Group companies are smaller than the average company in all of the Finance Sector of the economy. They compare by establishment size:

	Percent of Establishments	
Establishment Size	All Finance	SES Finance Group
1-19 Employees	90.7%	94.8%
20-99 Employees	8.1	4.7
100-499 Employees	1.1	0.5

By number of employees:

	Percent of Employees	
Establishment Size	All Finance	SES Finance Group
1-19 Employees	32.1%	54.2%
20-99 Employees	28.4	27.7
100-499 Employees	18.9	14.1

By employees/establishment:

Establishment Size	Employees/Establishment All Finance	Employees/Establishment SES Finance Group
1-19 Employees	4.0%	3.7%
20-99 Employees	39.2	38.0
100-499 Employees	196.2	187.7
Overall Group	11.2	6.4

- The establishments in the SES Finance Group tend to be smaller than their counterparts in the greater finance group. The distribution of firms is skewed towards the low end, the percentage of employees working in small size establishments is smaller and this results in an average number of employees/establishment that is only 57% of the average number of employees/establishment in the total finance, insurance and real estate sector.

b. Computer Equipment And Services Usage

(1) Computers And Services

- This is a well automated industry - over 67% of the respondents use computer services, over 37% have an in-house system and only 8% do not use any computers at all. Many use services from two sources or use services in addition to their own system.

- In-house systems become more prevalent as the establishment size increases and the use of computer services by branches from another location within the company decreases with establishment size (Exhibit V-73), as might be expected. Outside services, however, are used by the highest percentage of respondents in the medium size (20-99 employees) establishments of both the independents and the branches.

EXHIBIT V-73

FINANCE GROUP - LOCATION OF COMPUTERS OR COMPUTER SERVICES USED BY RESPONDENTS - BRANCHES

NUMBER OF RESPONDENTS = 45

RESPONDENT'S LOCATION

ANOTHER LOCATION IN RESPONDENT'S COMPANY

COMPUTER SERVICE

DOES NOT USE COMPUTERS

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

- While a very high 80% of the independent medium size establishments use outside service vendors, the 50% of the small and 43% of the large independent establishments that use outside services is very significant (Exhibit V-74).

- As highly automated as the industry is, the majority (58%) still receive their data either by mail or courier service. Virtually all (96%) of the interactive respondents are Savings and Loan Associations. This is irrespective of establishment size. The S&L's were involved with on-line customer accounting. Other non time critical data was sent by mail or courier. Interactive data transmission decreases as the establishment size increases because these establishments justify their in-house system primarily on the most critical applications, therefore they do not use a service organization for those activities where response time is important.

- Batch terminals with batch data transmission which represents an intermediate point on the time scale of data delivery are not used to any great extent in this sector. Some information must be at certain points at certain times while other information is useful when it arrives by slower methods. Intermediate speed is unimportant (Exhibit V-75).

- The question concerning how the respondents obtain their programs was asked of those who use services as well as those who have their own system. As the establishments increase in size:

  - They more frequently write their own programs.

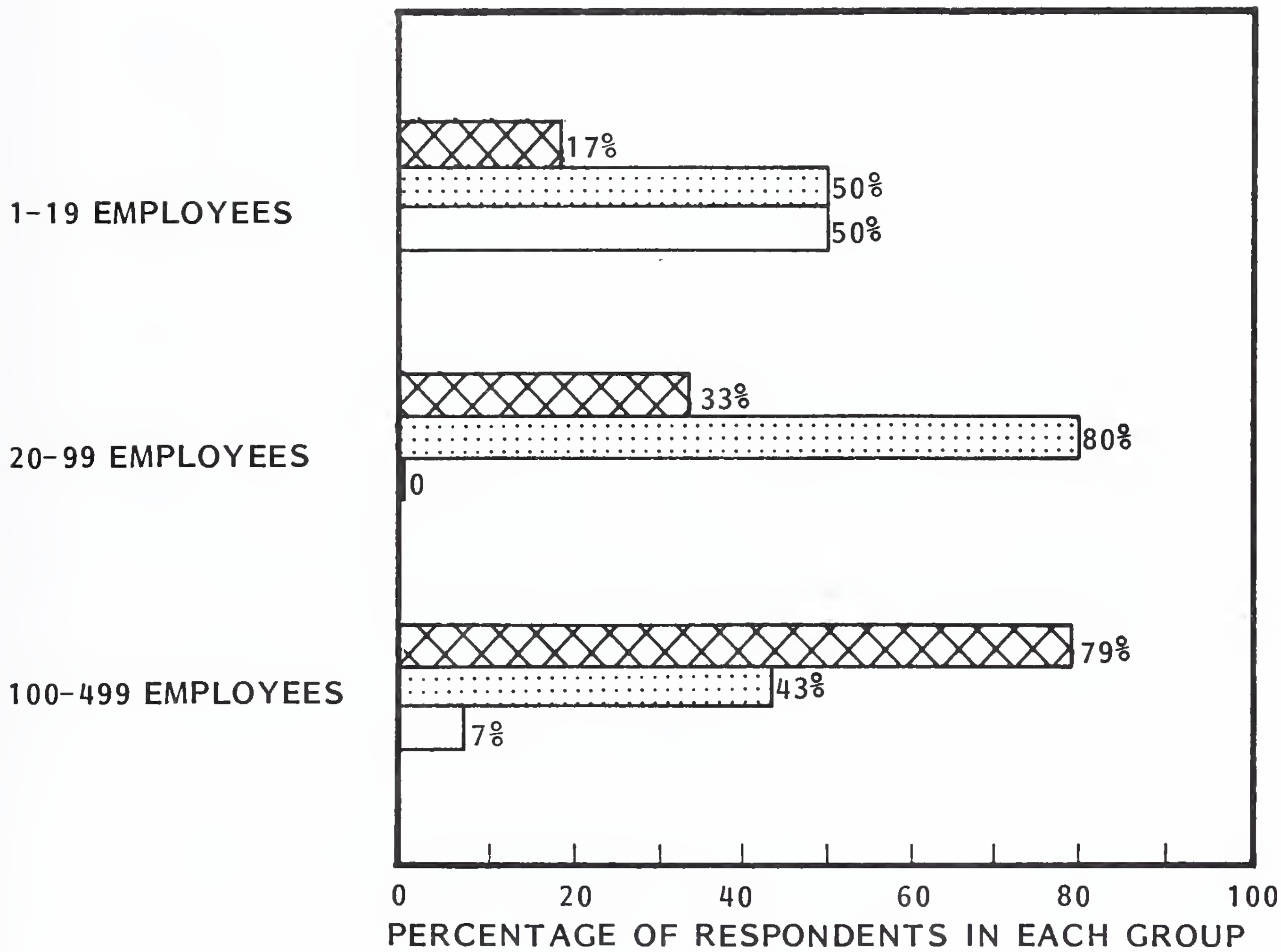
  - The influence of corporate headquarters on branch programming wanes.

  - The use of standardized programs decreases.

  - The use of user modified packaged programs increases.

EXHIBIT V-74

FINANCE GROUP - LOCATION OF COMPUTERS
OR COMPUTER SERVICES USED BY RESPONDENTS -
INDEPENDENTS



NUMBER OF RESPONDENTS = 41

RESPONDENT'S LOCATION

COMPUTER SERVICE

DOES NOT USE COMPUTERS

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

EXHIBIT V-75

FINANCE GROUP -
METHODS RESPONDENTS USED TO SEND AND RECEIVE DATA -
INDEPENDENTS

METHODS USED	PERCENTAGE OF INDEPENDENT ESTABLISHMENT RESPONDENTS
INTERACTIVE	42%
BATCH	15
VOICE (TELEPHONE)	12
PHYSICAL DELIVERY	54

NUMBER OF RESPONDENTS =26

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE METHODS

- Establishments in this sector, especially the larger ones, find it cost effective to purchase a programming package and use their own programming staff to modify it to fit their unique requirements.

  - Over 50% of the independents use or modify standard programming packages (Exhibit V-76).

- There are some important differences between the two industries that are part of the finance group:

  - Small and medium size S&Ls prefer standard programs.

  - No insurance service company uses standard programs.

  - Insurance service companies prefer to modify standard program packages.

  - Only large S&Ls modify standard programs.

  - Most insurance service companies write their own programs.

  - Some S&Ls write their own programs.

  - Neither use software houses to any great extent (11% for the independent).

- Several establishments have had the vendor either program the system for certain start-up applications or had the vendor attempting to modify previously written programs. These establishments expressed disappointment in the fact the vendor is having trouble getting the system to operate properly.

- As in other industries, leasing is the most popular way of acquiring computer equipment. In this sector purchasing is a very close second with 45% of the respondents claiming to have purchased some or all of their equipment

EXHIBIT V-76

FINANCE GROUP -
METHODS OF OBTAINING COMPUTER PROGRAMS -
INDEPENDENTS

METHODS USED	PERCENTAGE OF INDEPENDENT ESTABLISHMENT RESPONDENTS
USE STANDARD PROGRAMS	26%
MODIFY STANDARD PROGRAMS	26
WRITTEN BY A SOFTWARE HOUSE	11
WRITE OUR OWN	52

NUMBER OF RESPONDENTS = 27

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE METHODS

complements. The independent establishments prefer to purchase rather than lease: 59% to 41% as shown in Exhibit V-77. The decision is based on the particular accounting and financial circumstances of each establishment.

- While 70% of the independent establishment pay for computer services on a per transaction basis (Exhibit V-78) there are trends for both branches and independents.

  - As establishments increase in size they tend to pay by transaction more frequently.

  - As establishments increase in size the number that pay a flat monthly rate tends to decrease.

- Over 35% of the establishments that pay by transaction also pay a flat fee. Sometimes it is because they are using two different service centers or they may be using more than one kind of service from a single service center or the method of payment may depend upon the application. Most of the establishments who have payroll done by a service, pay by transaction (pay check). If the same service performs other work other payment methods may be used.

- There is no distinction to be made between S&Ls and insurance service companies in this area.

- This group is very active in the computer arena. Upgrading of equipment seems to be going on all the time along with the addition of new applications on both in-house systems and through service centers.

  - A major "complaint" voiced by two branch respondents was that "machines" are installed in the branches by the home office, "without consulting with the people who will use them." It is important for corporate headquarters and for vendors to realize that small establishments, especially first users, are very sensitive to the relationship between people, jobs, and machines.

EXHIBIT V-77

FINANCE GROUP - PRESENT TERMS OF ACQUIRING COMPUTER EQUIPMENT - INDEPENDENTS

TERMS USED	PERCENTAGE OF INDEPENDENT ESTABLISHMENT RESPONDENTS
RENT	6%
LEASE	41
PURCHASE	59

NUMBER OF RESPONDENTS = 17

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE METHODS

EXHIBIT V-78

FINANCE GROUP -
METHODS USED TO PAY FOR COMPUTER SERVICES -
INDEPENDENTS

METHODS USED	PERCENTAGE OF INDEPENDENT ESTABLISHMENT RESPONDENTS
BY TRANSACTION	70%
BY TIME	11
FLAT MONTHLY RATE	30
OTHER	4

NUMBER OF RESPONDENTS = 27

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE METHODS

- As one respondent put it, "speed up accounting area and office help gets fired." It may be true, but people (the users) really can make or break the system, especially if it is a new concept being installed on a trial basis.

(2) Communications Equipment

- Overall, 42% of the establishments use PABXs. In addition, another 5% use old switchboards. All of these PABXs are in the larger (100-499 employees) establishments and the high end of the medium size (20-99 employees) establishments, with the exception of the branches of large insurance service companies where PABXs are found in all size establishments.

- The group averages more telephones per establishment than employees; this industry is very communications conscious. The analysis by establishment size is:

Establishment Size	Telephones/Establishment	Employees/Establishment
1-19	7	3.7
20-99	28	38.0
100-499	76	187.7

- With all of this telephone equipment installed, the group, especially the independents, is very Bell oriented (Exhibit V-79). Very few (7%) of the independent establishments use interconnect equipment. No respondent is dissatisfied or is looking for private telephone equipment. One respondent used interconnect equipment and grew and then switched to equipment provided by the local carrier.

- All size establishments make extensive use of WATS service, except the independent S&Ls. They use very little communications services other than standard telephone service. Thirty-six percent of all of the respondents use WATS service, and 57% of the large size (100-499 employees) use the service.

EXHIBIT V-79

FINANCE GROUP -
SOURCES OF TELEPHONE EQUIPMENT -
INDEPENDENTS

SOURCES OF TELEPHONE EQUIPMENT	PERCENTAGE OF INDEPENDENT ESTABLISHMENT RESPONDENTS
BELL OPERATING COMPANIES	80%
OTHER TELEPHONE SERVICE COMPANIES	12
COMMUNICATIONS EQUIPMENT SUPPLIERS NOT SELLING CARRIER SERVICE	7

NUMBER OF RESPONDENTS = 41

- Instead of WATS lines the independent S&Ls used leased lines (52%) and these are primarily data lines.

- The medium and large insurance branches used TELEX/TWX service (45%), but some reported dropping the service as they bought higher speed terminals.

- Facsimile equipment is used by the medium size (20-99 employees) branch organizations of both industries (12%). It is primarily used to transmit financial reports to the corporate headquarters. Presumably, the large branches sent the information via a computer to computer hook-up.

- Two respondents have dictation equipment tied to the telephone lines.

(3) Office Equipment Usage

- The SES finance group uses word processing equipment to a much greater extent than any other group in this study.

  - Twenty-six percent of the establishments use word processing equipment, including 59% of the large (100-499 employees) establishments. This use is primarily in the insurance sector.

  - Sixteen percent of the establishments use memory typewriters.

  - The large size group averages 1.3 word processors/establishment and 0.9 memory typewriters/establishment for a total of 2.1 text editors/large establishment.

- There is only one shared logic word processor used. This is an area that might be examined by vendors of such text editing equipment. Sixty-four percent of the large size establishments that have single station word processors have more than one. One respondent has eight individual units.

- One large size respondent had a word processor and sold it because "there wasn't enough for it to do."

- Some of the more frequently mentioned word processing applications are:

  - Bulk mailing.

  - Many in-house documents must be originals.

  - Legal documents.

  - Summaries.

  - Forms.

- There was an attitude expressed by several respondents that their computer can do everything the word processor can do. Whether this attitude is waxing or waning cannot be determined from the data at this time, but it is very important to track from both the user and vendor viewpoints.

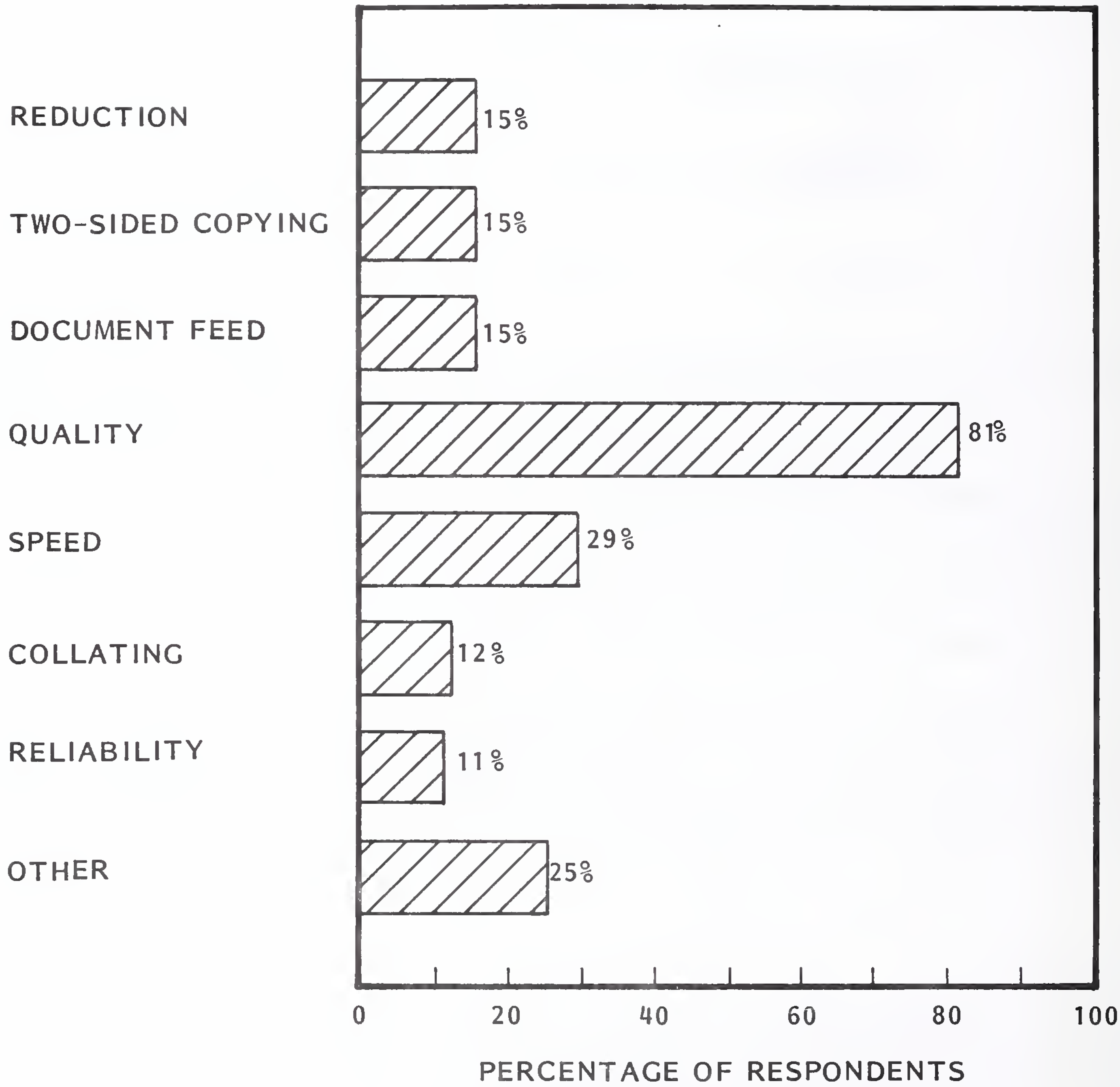
- Copying machines are used universally in this group with 85% of the establishments using plain paper copiers.

- Medium size (20-99 employees) establishments report up to eight copiers in one establishment and large size establishments have up to 15. Copying volumes reported range from 15 copies/day on up to 10,000, 25,000 and 38,000 copies/day. The 38,000 copies/day on two machines means the copiers are busy regularly over 75% of each day. This is in effect an in-house print shop.

- Most respondents are satisfied with whatever copying set-up they have settled into. Dissatisfaction was expressed when establishments switched brands or with the particular service they were getting. In looking for additional equipment, quality is the major feature for people in this industry group (Exhibit V-80). No other feature came close. Even those respondents making

EXHIBIT V-80

FINANCE GROUP -
COPIER FEATURES DESIRED



NUMBER OF RESPONDENTS = 73

upwards of 10,000 copies/day want quality first and speed second. They are inclined to buy several copiers if necessary to maintain quantity output with excellent quality.

- Some other features this industry would look for are:

  - Blue line copying for contracts.

  - Lower costs.

  - Idiot proofing.

  Several other features that are needed already exist but at higher costs. Apparently the need can't be justified at current costs. It would be a convenience "that's nice to have."

c. Needs And Plans For Improvement

(1) EDP

- The major activity planned for the next two years in the EDP area is the adding of applications to their systems. These applications will be in the following areas:

  - Additional accounting functions.

  - Claims and client records.

  - Customer information retrieval.

  - Word processing on DP system.

- The adding of these applications will mean adding additional equipment. Exhibit V-81 illustrates how the independent respondents who know they will

EXHIBIT V-81

FINANCE GROUP -
PLANS TO CHANGE OR MODIFY CURRENT COMPUTER
SYSTEM DURING THE NEXT TWO YEARS -
INDEPENDENTS

PLANS	PERCENTAGE OF INDEPENDENT ESTABLISHMENT RESPONDENTS
ADD A COMPUTER	7%
MODIFY PRESENT COMPUTER	53
REPLACE PRESENT COMPUTER WITH A NEW COMPUTER	27
REPLACE PRESENT COMPUTER WITH A COMPUTER SERVICE	0
NO PLANNED CHANGE	13

NUMBER OF RESPONDENTS = 15

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO RESPONDENTS PLANNING MULTIPLE CHANGES

have to make changes expect to change. Others feel they will need additional equipment to handle the increased work load but are not far enough along to know exactly what additions will be required.

- Over half (53%) of the independents will be modifying their present setup and, at this time, 27% know that they will need a new system and are planning for a replacement system. Most of the respondents who are replacing their system are switching brands and will be in a transition mode during the next two years.

- The small size groups (1-19 employees) are generally recent purchasers of systems and are just, "getting the feel of what can be done with the equipment." The other two groups will be adding terminals to their current systems in order to obtain better access to the information on the system.

- One S&L respondent will expand the system in order to be able to provide more services to the association's service bureau customers. This will provide the highest ROI to the bank and will bring in more customers.

- Indicative of the kinds of expansion that will be taking place during the next two years is the high ranking given to "compatibility with larger systems," in Exhibit V-82. The choice of this factor is also indicative of a highly automated and knowledgable industry sector. The other high ranking factors tend to support the premise of "an expansion of present systems" period during the next two years.

  - Delivery must mesh with the planned application schedule.

  - Vendor support will be required on time to install and test the new hardware which must be available.

  - The vendor's reputation and his need to protect it will help make it all happen as planned.

EXHIBIT V-82

FINANCE GROUP-
IMPORTANCE OF FACTORS IN CHOOSING COMPUTERS -
INDEPENDENTS

FACTORS	RATING
SUPPORT	2.1
AVAILABLE SOFTWARE	1.7
DELIVERY SCHEDULE	2.3
VENDOR REPUTATION	2.6
AVAILABLE HARDWARE	2.3
COMPATIBILITY WITH LARGER SYSTEMS	2.4

RATINGS: VERY IMPORTANT = 3
SOMEWHAT IMPORTANT = 2
SLIGHTLY IMPORTANT = 1
UNIMPORTANT = 0

(2) Communications

- The S&L respondents are having trouble with intra-company communications especially in 20-99 employee size establishments. There are problems between branches and departments.

- The smaller (1-19 employees) insurance service establishments are having trouble with long distance calling and would welcome aids that would make the process less time consuming.

- The 20-99 employee size establishments are outgrowing their telephone systems. Fifteen percent will be looking to expand their current system or purchase a new system. These respondents currently average about $2,500 per month for telephone services.

- A very small number of respondents will be switching to WATS service in an effort to cut their telephone service costs. Two respondents, one small and one medium size, will be using consultants in a attempt to accomplish the same goal.

(3) Office

- Respondents have some problems, but do not indicate that they will do very much in the next two years to solve the problems:

  - Need for quicker information retrieval.

  - Need a copier that will copy anything.

  - Need better filing system and filing aids.

  - Delivery of the typewriters takes too long - 15 weeks.

  - Could use word processor, but it is too expensive.

- None of the above respondents claimed to be:

  - Looking into microfilm or other information retrieval systems.

  - New copiers.

  - Other brands of typewriters or more capable ones where the demand is less and delivery time might be less.

  - Memory typewriters if word processing is too expensive.

- Respondents:

  - Are going to purchase dictation systems.

  - Will connect existing word processing equipment to telephone lines for communication with the home office.

  - Are planning to conduct studies and make surveys to determine the need for memory typewriters and/or word processors.

- A reasonable amount of activity will be taking place but much of it couldn't be pinned to specific purchases of equipment or services at this time.

d. <u>Budgeting</u>

- Thirty-two percent of the independent establishments use last year's consumable costs as the basis for establishing an information processing budget (Exhibit V-83). This is quite high compared with the other industries in this study.

EXHIBIT V-83

FINANCE GROUP -
BASIS FOR BUDGETING FOR INFORMATION HANDLING
EQUIPMENT AND SERVICES -
INDEPENDENTS

BUDGETING BASIS	PERCENTAGE OF INDEPENDENT ESTABLISHMENT RESPONDENTS
PERCENT OF REVENUE	8%
LAST YEAR'S CONSUMABLE COST	32
HANDLE ON AN INDIVIDUAL BASIS	58
OTHER	8

NUMBER OF RESPONDENTS = 38

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE METHODS

- As the establishment size increases:

  - Those respondents using the percent of revenue and last year's consumable costs techniques for budgeting, increases.

  - Those whose budget is determined elsewhere and those who budget for information handling equipment and services on an individual basis, decreases.

- In this group money is set aside for information handling equipment and services without regard to the cost of the solution to particular problems. An amount of money is available and those that can solve their problems within that boundary are free to do so, those that can't will have to "wait till next year," or until the problem becomes critical. Several respondents indicated that the budget can be overriden when an important item or service must be purchased.

2. FINANCIAL - SAVINGS AND LOAN ASSOCIATIONS

a. Industry Characteristics

- A savings and loan (S&L) association is usually defined as a locally owned and privately managed thrift and home financing institution. S&Ls are private organizations established under both federal and state laws. These associations accept the risk on interest earning investments, primarily home mortgages, and use the income to pay interest to savers, dividends to investors, operating expenses and to build reserves.

- There are 4,770 S&Ls in the U.S. doing business from 18,215 establishments. The larger S&Ls (measured by assets) represent 20% of the total companies, but they have 77% of the total assets and 66% of the total accounts.

- The structure by branches is:

Branch Level	Number of S&Ls	Number of Establishments	Assets
No branches	2,094	2,094	$ 41.9 B
1 branch	698	1,396	26.0 B
2 branches	530	1,590	29.9 B
3-5 branches	789	3,755	74.4 B
6-9 branches	341	2,804	59.1 B
10 or more branches	318	6,576	194.7 B
Total	4,770	18,215	$426.1 B

- Half of the S&L asset base is concentrated in six states: California (18%), Illinois (7%), Florida (7%), Ohio (7%), New York (6%) and Texas (5%).

- The structure of the industry by employee size is shown in Exhibit V-84. The average number of employees per establishment is derived as:

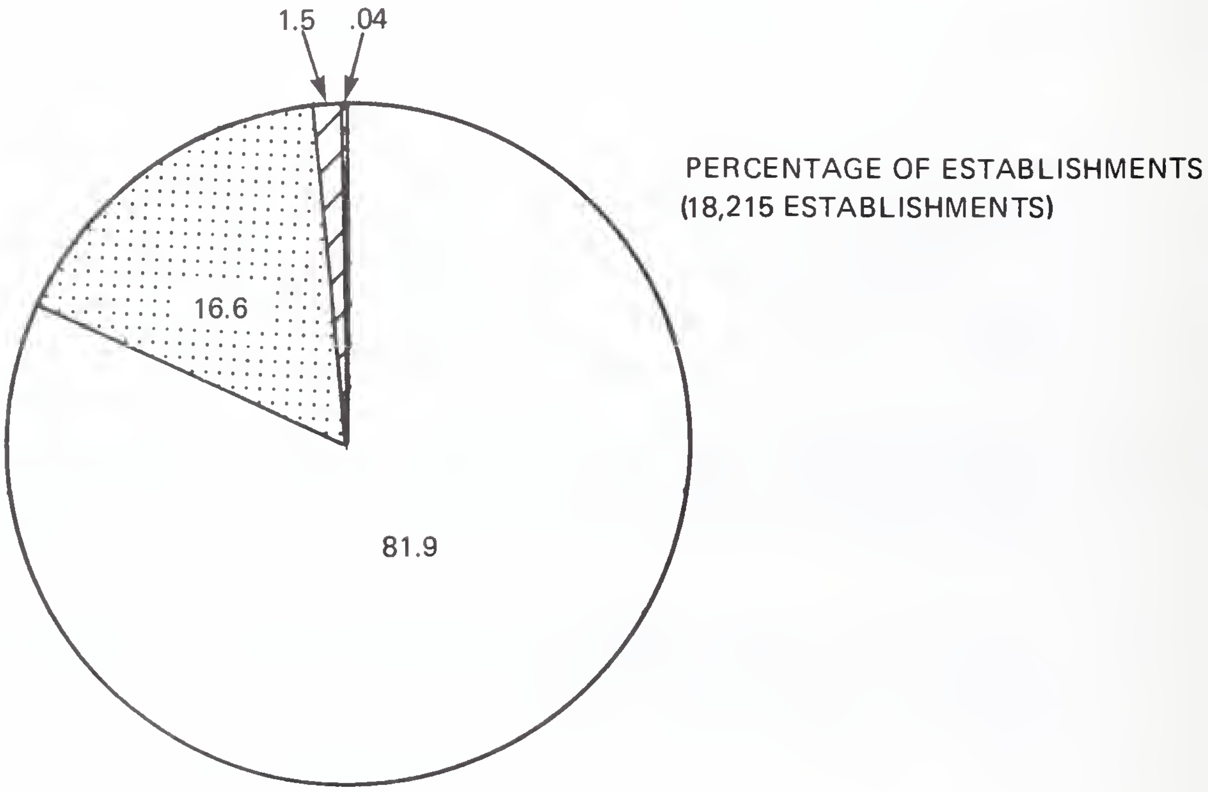
1-19	7
20-99	38
100-499	177

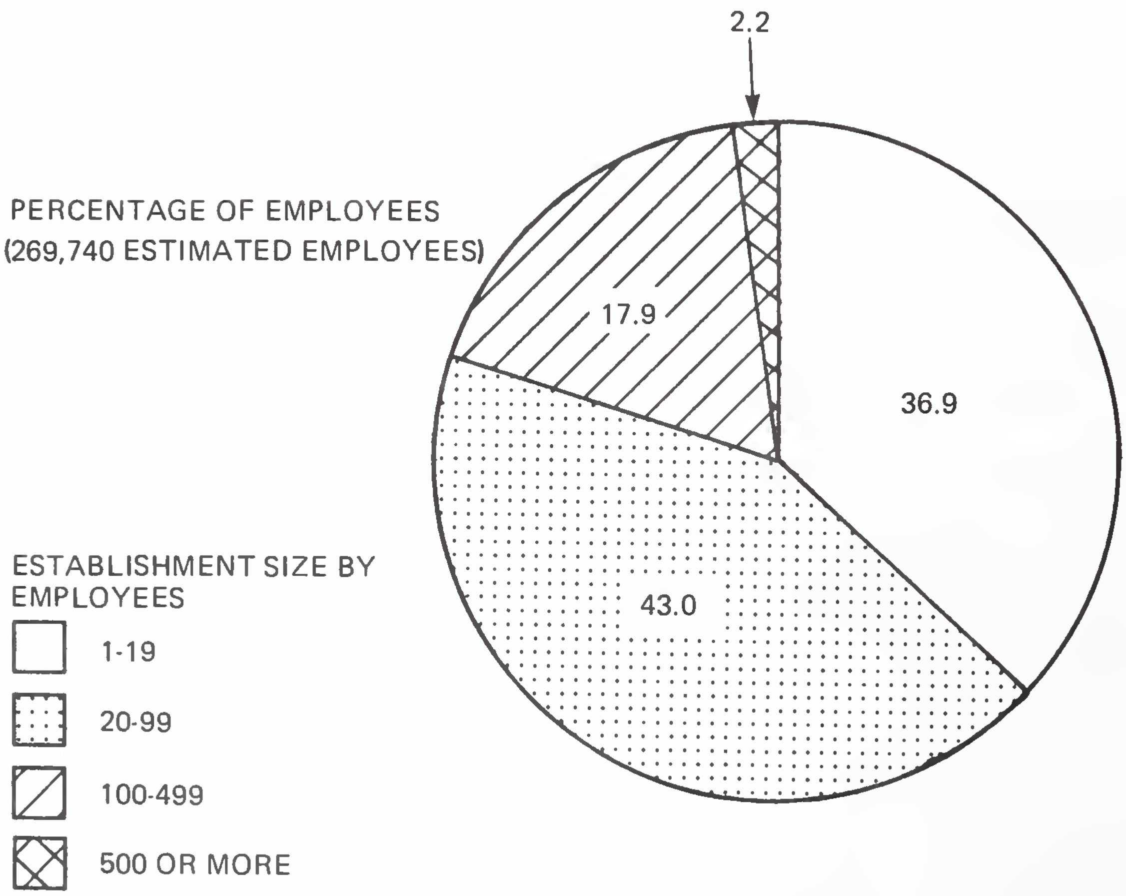
which is about the average found in the other sectors.

- The market structure of the S&Ls is in a state of change influenced by financial markets, government legislation and competition. There is a great deal of lobbying at both the state and federal levels for legislation that would permit S&Ls to expand their range of financial services. S&Ls have been generally limited to consumer savings and mortgage loans. The S&Ls would like to become full range "Family Financial Centers," while the commercial banks would then become "Business Financial Centers."

EXHIBIT V-84

STRUCTURE OF THE SAVINGS AND LOAN ASSOCIATION SECTOR
(1976 DATA)





- As legislation proceeds along these lines there most likely will be more consolidation taking place in the industry and therefore a need for expanded equipment and services of all varieties to handle the increasingly diversified work load.

- The S&Ls are making progress towards their goals of becoming the local family financial center.

  - At least seven states permit S&Ls to offer NOW (Negotiable Order of Withdrawal) accounts. Pending federal legislation will give this option to all federal S&Ls.

  - S&Ls can issue VISA and Mastercharge cards.

  - S&Ls around the country have pioneered local electronic funds transfer networks for shared automated teller machines and point-of-sale terminals.

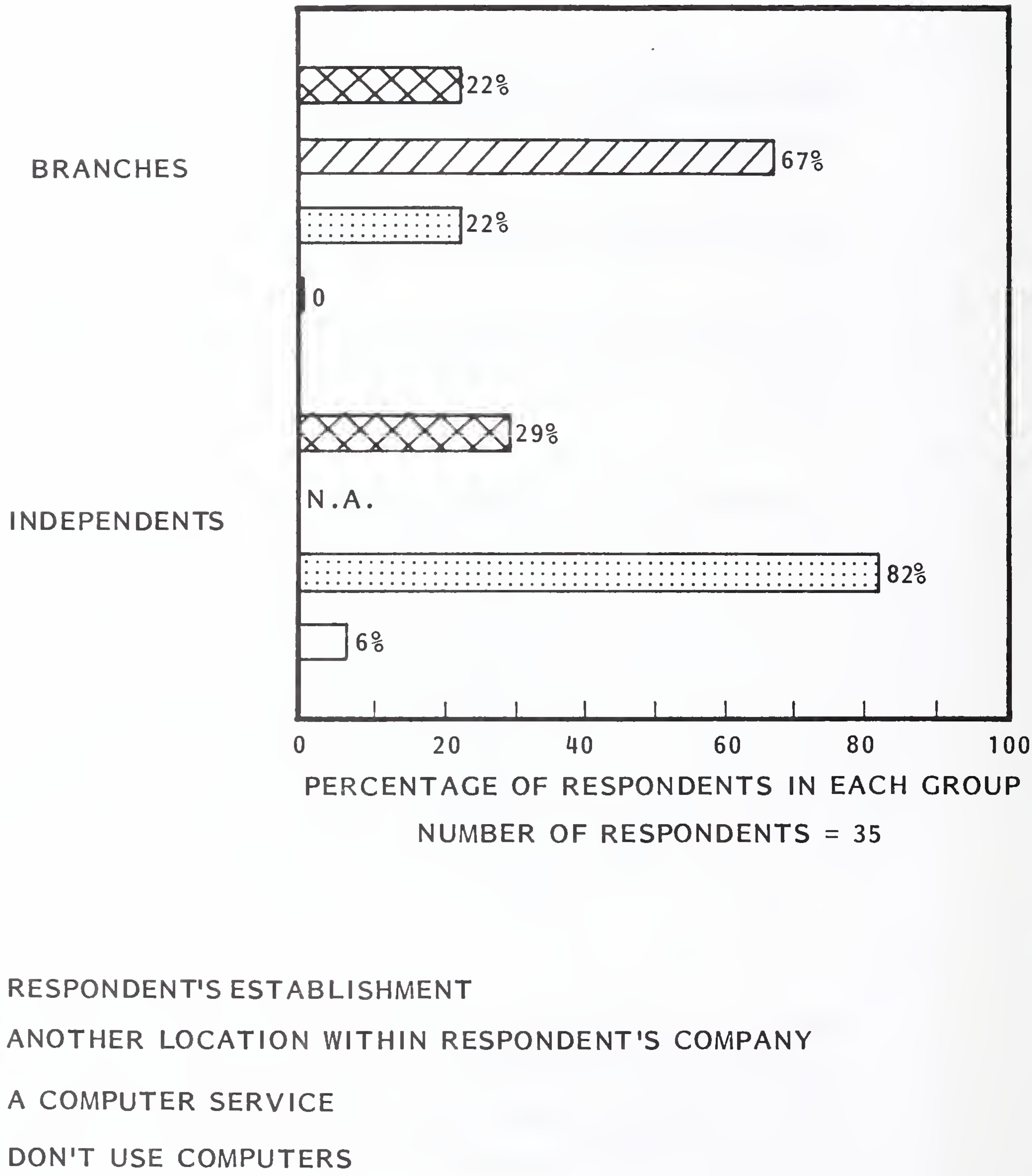
b. Computer Equipment And Services Usage

- INPUT has found Savings & Loans Associations to be a highly automated industry. In "Computer Services Markets in Banking and Finance," July 1979, INPUT reported that 70% of the associations are major users of on-line interactive computer services. In the small establishment area, 83% of the respondents were on-line to a service vendor. In addition to using computer services, 25% of the S&Ls have their own system. In Exhibit V-85, 67% of the branches of large corporations use computer services provided by other parts of their company, while 22% use outside computer service vendors and 22% have their own system.

  - There is nothing in this data that says these categories are mutually exclusive. No branch respondent used all three kinds of services. They either had their own system and used intra-company services, used intra company and inter-company services or just used their own system.

EXHIBIT V-85

SAVINGS AND LOAN ASSOCIATION SECTOR -
LOCATION OF COMPUTERS OR COMPUTER SERVICES
USED BY RESPONDENTS
(1979)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

- All branches used computers in some way.

- Eighty-two percent of the independent S&Ls used outside computer services. Sixty percent of those S&Ls that had their own system also used outside services. The independent respondents that did not use computers at all when interviewed, expected to be on-line interactively by the time this study is published.

  - The coming five years will see an increase in in-house systems with only a slight drop in service usage (Exhibit V-86).

  - Some S&Ls use their own system as a base from which to sell services to their banking customers, to other banks and to other companies.

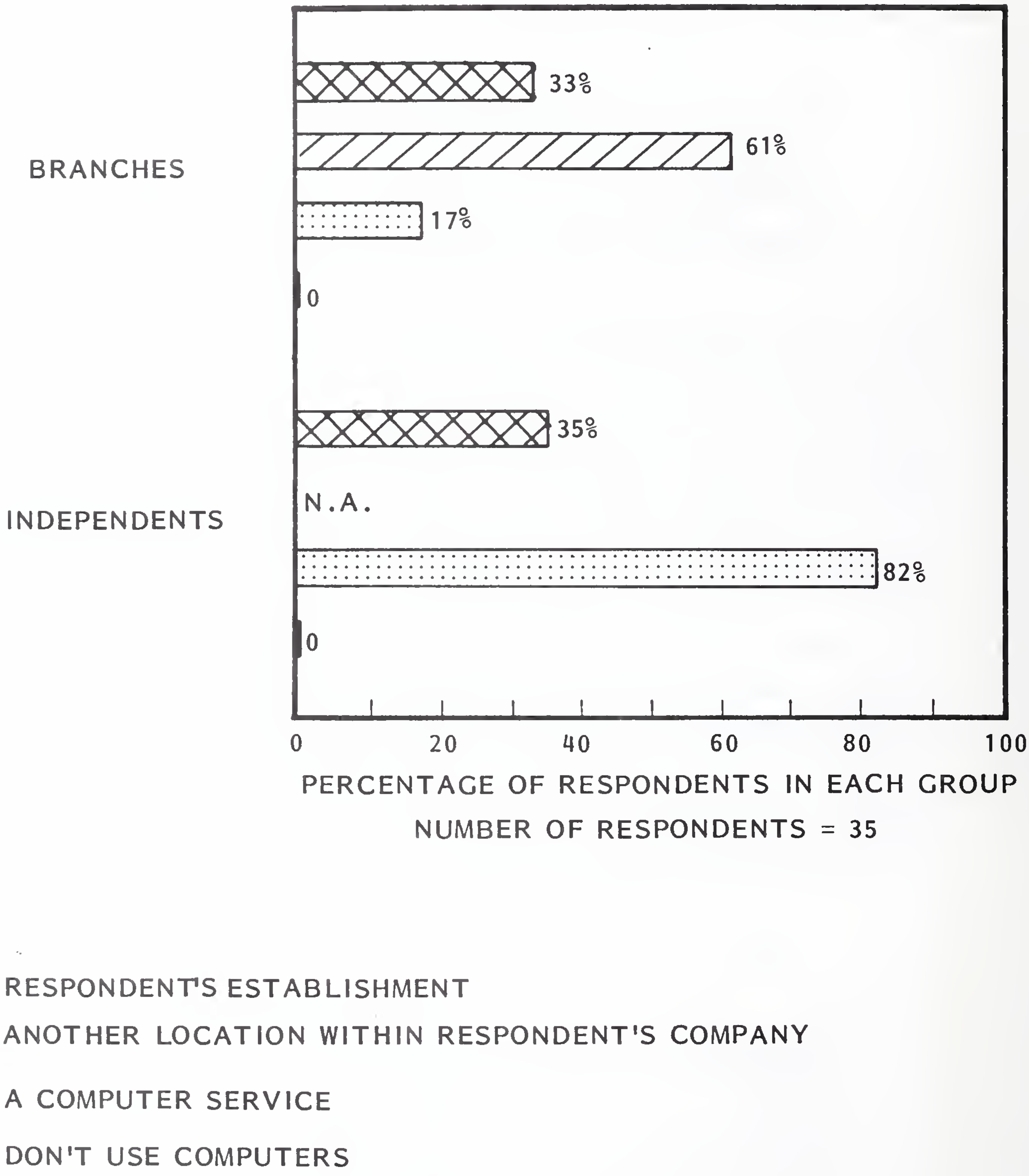
- Most S&Ls have automated the standard accounting functions - 94% of the branches and 59% of the independents (Exhibit V-87 and V-88). Since the branches are so highly automated no growth is indicated in the standard application areas. The picture is different for the independent S&Ls. While 59% of the establishments reported having automated the accounting function currently, 82% will have them automated by 1984.

- The industry specific applications are important because new ones become possible each time S&Ls are permitted to provide more financial services. Exhibit V-89 shows the industry specific applications and the implementation in S&Ls of all sizes. This data is from the INPUT report "Computer Services Markets in Banking and Finance," July 1979. As defined in that report, the sizes referred to on the exhibit are:

Size	Assets	SES Study Sample
Very Large	Over $1B	9%
Large	$100M - 1B	48
Medium	$25M - 100M	39
Small	Under 25M	4

EXHIBIT V-86

SAVINGS AND LOAN ASSOCIATION SECTOR -
LOCATION OF COMPUTERS OR COMPUTER SERVICES
USED BY RESPONDENTS
(1984)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

EXHIBIT V-87

SAVINGS AND LOAN ASSOCIATION SECTOR -
PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS -
BRANCHES

APPLICATIONS	BRANCHES OF LARGE CORPORATIONS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MARKETING AND SALES			
ORDER ENTRY	0	67%	67%
SALES ANALYSIS	0	72	72
CREDIT AUTHORIZATION	6%	89	89
ACCOUNTING & FINANCE			
PAYROLL	11	89	94
BILLING	6	94	94
ACCOUNTS RECEIVABLE	6	94	94
ACCOUNTS PAYABLE	6	94	94
GENERAL LEDGER	6	94	94
INDUSTRY RELATED			
SAVINGS & LOAN ACCOUNTING	0	83	83
NEW ACCOUNTS	0	0	0
MORTGAGES	0	0	0
OTHER INDUSTRY RELATED	0	11	11
PURCHASING			
INVENTORY CONTROL	0	11	11
RECEIVING	0	0	0

NUMBER OF RESPONDENTS = 18

EXHIBIT V-88

SAVINGS AND LOAN ASSOCIATION SECTOR -
PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS -
INDEPENDENTS

APPLICATIONS	INDEPENDENT ESTABLISHMENTS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MARKETING AND SALES			
ORDER ENTRY	24%	71%	88%
SALES ANALYSIS	29	65	82
CREDIT AUTHORIZATION	24	76	94
ACCOUNTING & FINANCE			
PAYROLL	35	59	82
BILLING	35	59	82
ACCOUNTS RECEIVABLE	35	59	82
ACCOUNTS PAYABLE	41	59	88
GENERAL LEDGER	59	41	76
INDUSTRY RELATED			
SAVINGS & LOAN ACCOUNTING	12	76	88
NEW ACCOUNTS	12	6	12
MORTGAGES	0	18	18
OTHER INDUSTRY RELATED	0	18	18
PURCHASING			
INVENTORY CONTROL	0	0	0
RECEIVING	0	0	0

NUMBER OF RESPONDENTS = 17

EXHIBIT V-89

SAVINGS AND LOAN ASSOCIATION SECTOR -
EDP UTILIZATION FOR SAVINGS AND LOAN APPLICATIONS BY SIZE

APPLICATION	APPLICATION FUNCTIONS	SAVINGS AND LOAN SIZE											
		VERY LARGE			LARGE			MEDIUM			SMALL		
		IH	CS	INT	IH	CS	INT	IH	CS	INT	IH	CS	INT
SAVINGS	• PASSBOOK SAVINGS	XXX	X	XXX	XXX	X	XXX	XX	XX	XXX	X	XXX	XXX
	• SAVINGS CERTIFICATES	XXX	X	XXX	XXX	X	XXX	XX	XX	XXX	X	XXX	XXX
	• MARKET RATE CERTIFICATES	XXX	–	XXX	XX	X	XXX	–	–	–	–	–	–
	• IRA + KEOGH	XXX	X	XXX	XXX	X	XXX	XX	XX	XX	X	XX	XX
	• SAVINGS ADMINISTRATION	XXX	X	XXX	XXX	X	XXX	XX	XX	XX	X	XX	XX
LOANS	• MORTGAGE LOANS	XXX	X	XXX	XXX	X	XXX	XX	XX	XX	X	XX	XX
	• APPRAISALS	–	XX	XXX	–	X	XXX	–	–	–	–	–	–
	• CONSTRUCTION LOANS	XXX	X	XXX	XXX	X	XXX	XX	XX	XXX	–	–	–
	• LOAN ADMINISTRATION	XXX	X	XXX	XX	XX	XXX	X	X	XX	–	X	XX
	• REAL ESTATE MANAGEMENT	XXX	X	XXX	XXX	X	XXX	–	–	–	–	–	–
	• SECONDARY MORTGAGE MARKET TRADING	–	X	XXX	–	X	XXX	–	–	–	–	–	–
ADMINISTRATION	• PERSONNEL RECORDS	XX	XX	XX	X	XX	XX	–	XX	XX	–	–	–
	• PAYROLL	X	XXX	–	–	XX	–	–	–	–	–	–	–
	• AUTOMATIC DEPOSITS	XXX	X	XXX	XXX	X	XXX	X	XX	XX	–	XX	XX
FINANCIAL MANAGEMENT	• FINANCIAL PLANNING	–	XXX	XXX	–	X	XXX	–	–	–	–	–	–
	• FINANCIAL REPORTING	XXX	X	XXX	XXX	X	XXX	X	XX	XXX	–	XX	XX
	• PORTFOLIO MANAGEMENT	–	XXX	XXX	–	X	XXX	–	–	–	–	–	–
CONSUMER SERVICES	• POS/ATM	XXX	X	XXX	XX	XX	XXX	X	X	XXX	–	X	XXX
	• NOW ACCOUNTS	X	X	X	X	X	X	X	X	X	–	X	XXX
	• PAY BY PHONE	XX	X	XXX	XX	X	XX	X	X	XX	–	X	XXX
	• CREDIT CARDS	XX	XX	XXX	XX	XX	XXX	X	X	XXX	X	X	XXX
	• CONSUMER INSTALLMENT LENDING	XX	–	XXX	X	–	XXX	–	–	–	–	–	–

– NOT USED
X LESS THAN 25%
XX BETWEEN 25% AND 75%
XXX OVER 75%
IH IN-HOUSE
CS COMPUTER SERVICES
INT INTERACTIVE MODE

- The application needs S&L executives expressed interest in are:

  - NOW account processing.

  - Mortgage lending.

  - Pay-by-phone.

  - Consumer installment lending.

  - Credit card processing and accounting.

- Most S&Ls try to solve system problems before they occur and are constantly expanding the system and use of services. Many experienced aggravated down times either with their own system or with service vendors and expressed desires for better maintenance services.

c. Communications Equipment

- The branches are keyset oriented while the independents show a slight preference for PABXs (Exhibit V-90). Most respondents were satisfied with their supplier of both equipment and services. There is very little usage of private equipment. About 35% of the respondents indicated some change would take place within the next two years. Primarily mentioned was expansion of the present system. Two systems were old and needed replacement. Nobody indicated a desire to consider owning their own system or switching from their present supplier.

- The almost total lack of recognition of some of the pros and cons of interconnect equipment indicates perhaps a lack of awareness of the available options. This might be an area for interconnect companies to test and explore.

- TWX and TELEX are ignored by the S&Ls. Leased lines are used by the independent S&Ls to reach their computer service suppliers and no indepen-

EXHIBIT V-90

SAVINGS AND LOAN ASSOCIATION SECTOR - COMMUNICATIONS EQUIPMENT AND SERVICES USED BY RESPONDENTS (PERCENTAGE OF RESPONDENTS)

TYPE OF EQUIPMENT/SERVICE	INDEPENDENT ESTABLISHMENTS	BRANCHES OF LARGE CORPORATIONS
COMMUNICATIONS EQUIPMENT		
KEYSET	47%	72%
PABX	53	27
INTERCONNECT	0	6
FACSIMILE	0	0
COMMUNICATIONS SERVICES		
WIDE-AREA TELEPHONE SERVICE (WATS)	0	33
TELEX/TWX	6	6
LEASED LINES	53	11
NON-TELEPHONE COMPANY SUPPLIED SERVICES	0	0

NUMBER OF RESPONDENTS = 35

dent reported using WATS. The branches conversely used WATS three times as frequently as they did leased lines.

- The independents used leased lines and PABXs, while the branches of large corporations preferred keysets and WATS service.

d. <u>Office Equipment Usage</u>

- Plain paper copiers completely dominate the S&L industry (Exhibit V-91). Those respondents that used coated paper copiers had plain paper copiers also.

- Some copier brand shifts were reported by the S&Ls.

- Very little use is made of text editing equipment even though the paperwork bottleneck is the S&Ls' biggest noted problem.

- Word processing is the next area most respondents expressed a desire to move towards. One branch respondent intends to buy word processing equipment to hook to his telephone line in order to communicate with the home office.

3. INSURANCE - INSURANCE SERVICES

a. <u>Industry Characteristics</u>

- The insurance service industry includes agents representing one or more insurance carriers, or brokers not representing particular carriers, but acting as independent contractors in the sale or placement of insurance contracts with carriers, but not employees of the insurance carriers. Also included are various insurance service establishments such as:

  - Independent laboratories.

  - Independent insurance adjusters.

EXHIBIT V-91

SAVINGS AND LOAN ASSOCIATION SECTOR -
OFFICE EQUIPMENT USED BY RESPONDENTS
(PERCENTAGE OF RESPONDENTS)

TYPE OF EQUIPMENT	INDEPENDENT ESTABLISHMENTS	BRANCHES OF LARGE CORPORATIONS
ELECTRONIC TYPEWRITERS	29%	0
STANDALONE WORD PROCESSORS	18	17%
COATED PAPER COPIERS	6	11
PLAIN PAPER COPIERS	94	100
DUPLICATING EQUIPMENT	6	0
PRINT SHOP	0	6

NUMBER OF RESPONDENTS = 35

- Insurance information bureaus.

- Loss prevention services.

- Ratemaking organizations.

- Insurance patrol services.

- Insurance consultants.

- The data in Exhibit V-92 applies to the entire insurance service industry sector. The estimated total revenue for this sector is $~~137~~ 34 billion. Contributions to the total by establishment size are:

Establishment Size	Estimated Revenue ($ BILLION)	Employee/Establishment
1-19 Employees	$ ~~79B~~ 21	3.2
20-99 Employees	$ ~~32B~~ 7	37.5
100-499 Employees	$ ~~18B~~ 4	197.2

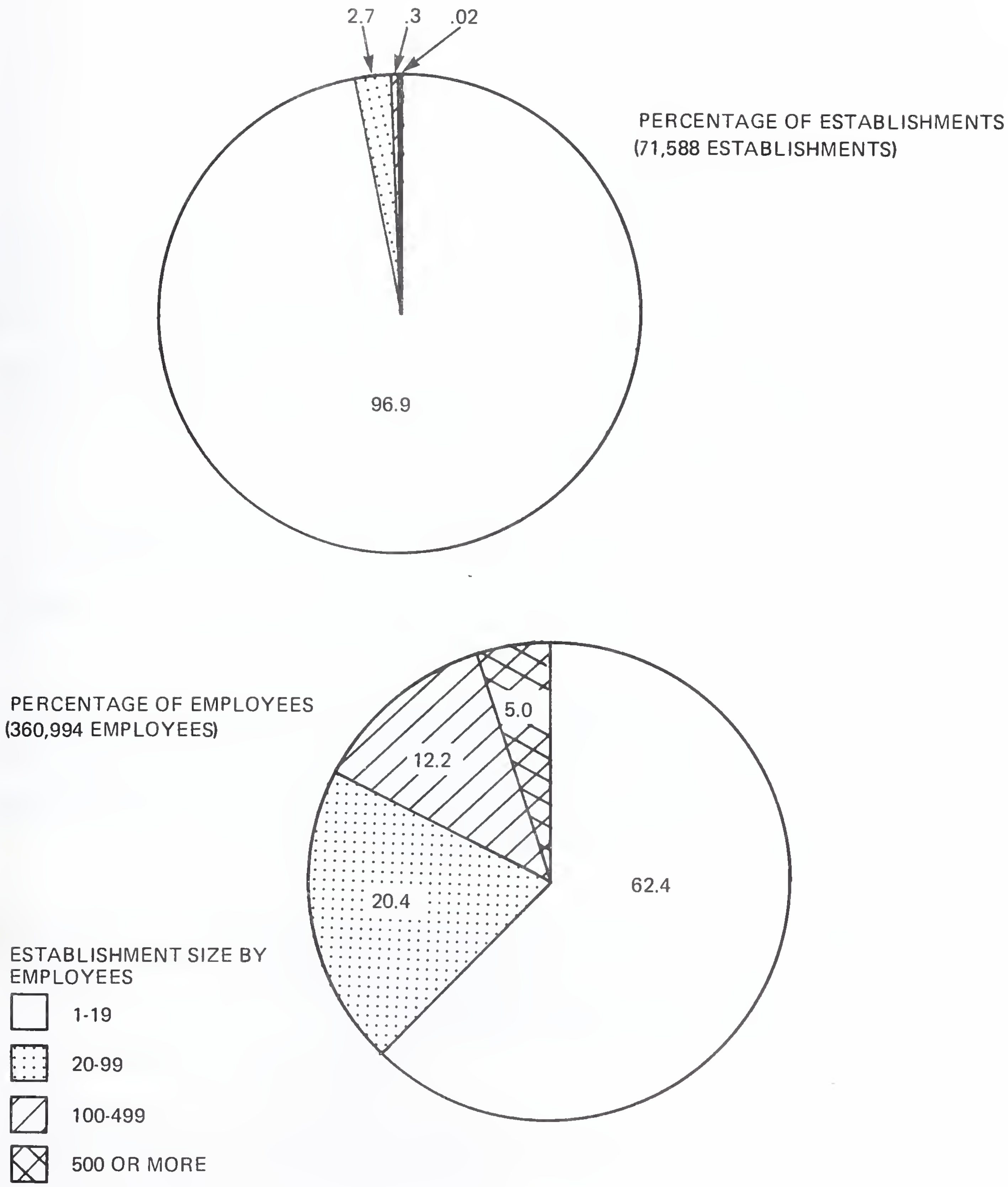
- The number of employees per establishment is lower in the small category (3.2 versus 6-7) and higher in the larger category (197.2 versus 150-160) than in many other industries. The average revenue per employee is estimated at $~~380,000~~ 95,000 with a range of $~~351,000~~ 85,000 to $~~434,000~~ 150,000, increasing as the establishment size increases.

- The portion of the insurance service sector studied for the report is the insurance agent and broker subsector. There are about 34,500 independent insurance agencies in the U.S. representing more than 126,000 agents and employing over 250,000 people. These agencies generate over 70% of revenue of the total sector.

EXHIBIT V-92

STRUCTURE OF THE INSURANCE SERVICE SECTOR

(1976 DATA)



- This sector has very positive attitudes and is looking forward towards less expensive equipment really helping to solve paperwork problems. Respondents are:

  - Planning to expand existing systems.

  - Evaluating electronic typewriters.

  - Exploring word processing systems.

b. <u>Computer Equipment And Services Usage</u>

- While Exhibit V-93 shows the high level of automation in this industry, especially in the branches of large corporations, it does not show that over 20% of the independents that have their own system also use an outside service vendor. Those establishments that will be expanding or getting their own system will not drop the computer service vendor (Exhibit V-94). The pattern is an expected one.

  - The smaller independent establishments do not use computers.

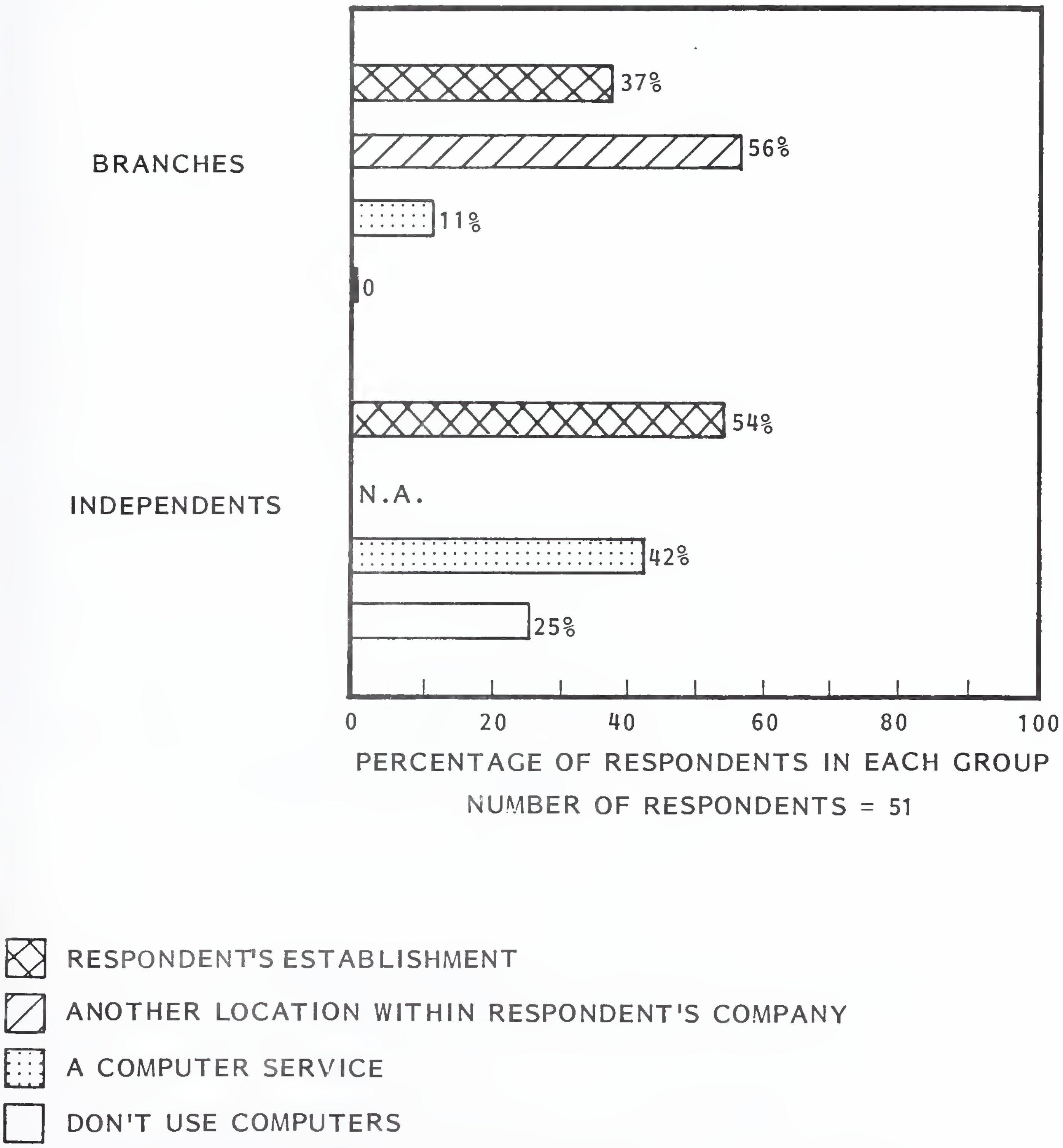
  - The medium size agencies use outside services or have their own system.

  - The larger independents have their own system and use an outside service vendor. There are minor exceptions - one small agency has its own system and uses an outside service and a very large independent establishment does not use a computer at all - yet.

- In general the independents that have their own system and use a computer service use the service for payroll. One respondent uses the service for customer billing and accounts receivable.

EXHIBIT V-93

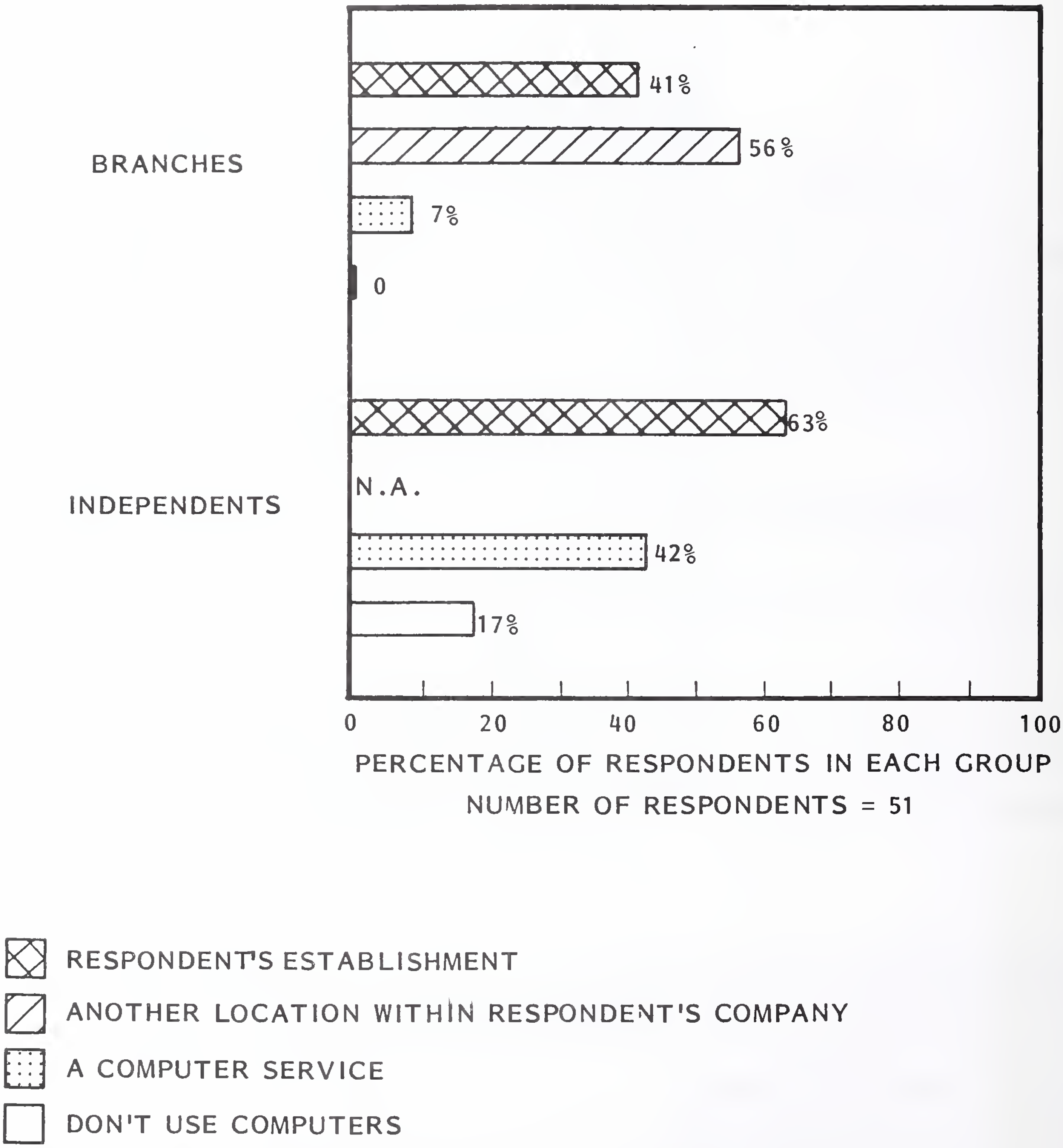
INSURANCE SERVICE SECTOR -
LOCATION OF COMPUTERS OR COMPUTER SERVICES
USED BY RESPONDENTS
(1979)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

EXHIBIT V-94

INSURANCE SERVICE SECTOR -
LOCATION OF COMPUTERS OR COMPUTER SERVICES
USED BY RESPONDENTS
(1984)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

- Two-thirds of the smaller and medium size branches use the services located at the home office, while 88% of the large branches have their own system. Since none of the branches indicated dual use of services, all of their automated functions are done in one location - in-house, by home office or by an outside service company.

- This is a paper work industry with very specific applications. Despite the high level of use of computers, a surprisingly small percentage of the respondents claimed to have automated activities such as:

  - Policy accounting.

  - Policy writing.

  - Claims accounting.

  - Rate information.

  - Cash value analysis.

  The branches generally indicated that the home office did many of these applications at that level and not at the branch level (Exhibit V-95). The independents did do claims accounting at more than just entry level (42% on Exhibit V-96) but the other applications were done by the insurance company itself and not by the agency.

- RPG and COBOL are used equally. Most establishments that reported using a language used a second language also (Exhibit V-97), but no RPG shop used COBOL nor did any COBOL shop report RPG as a second language.

- The EDP opportunities that exist in this industry sector are numerous - increasing as the cost of small complete business systems decreases. Completeness includes standard but moderately flexible business packages and a willingness to do some hand holding to first time users.

EXHIBIT V-95

INSURANCE SERVICE SECTOR -
PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS -
BRANCHES

APPLICATIONS	BRANCHES OF LARGE CORPORATIONS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MARKETING AND SALES			
ORDER ENTRY	12%	69%	73%
SALES ANALYSIS	15	73	77
CREDIT AUTHORIZATION	8	69	69
ACCOUNTING & FINANCE			
PAYROLL	8	92	96
BILLING	8	92	96
ACCOUNTS RECEIVABLE	8	92	96
ACCOUNTS PAYABLE	8	88	92
GENERAL LEDGER	8	88	92
INDUSTRY SPECIFIC			
POLICY ACCOUNTING	0	8	8
POLICY WRITING	0	12	12
CLAIMS ACCOUNTING	0	8	8
OTHER INDUSTRY SPECIFIC	0	23	23

NUMBER OF RESPONDENTS = 26

EXHIBIT V-96

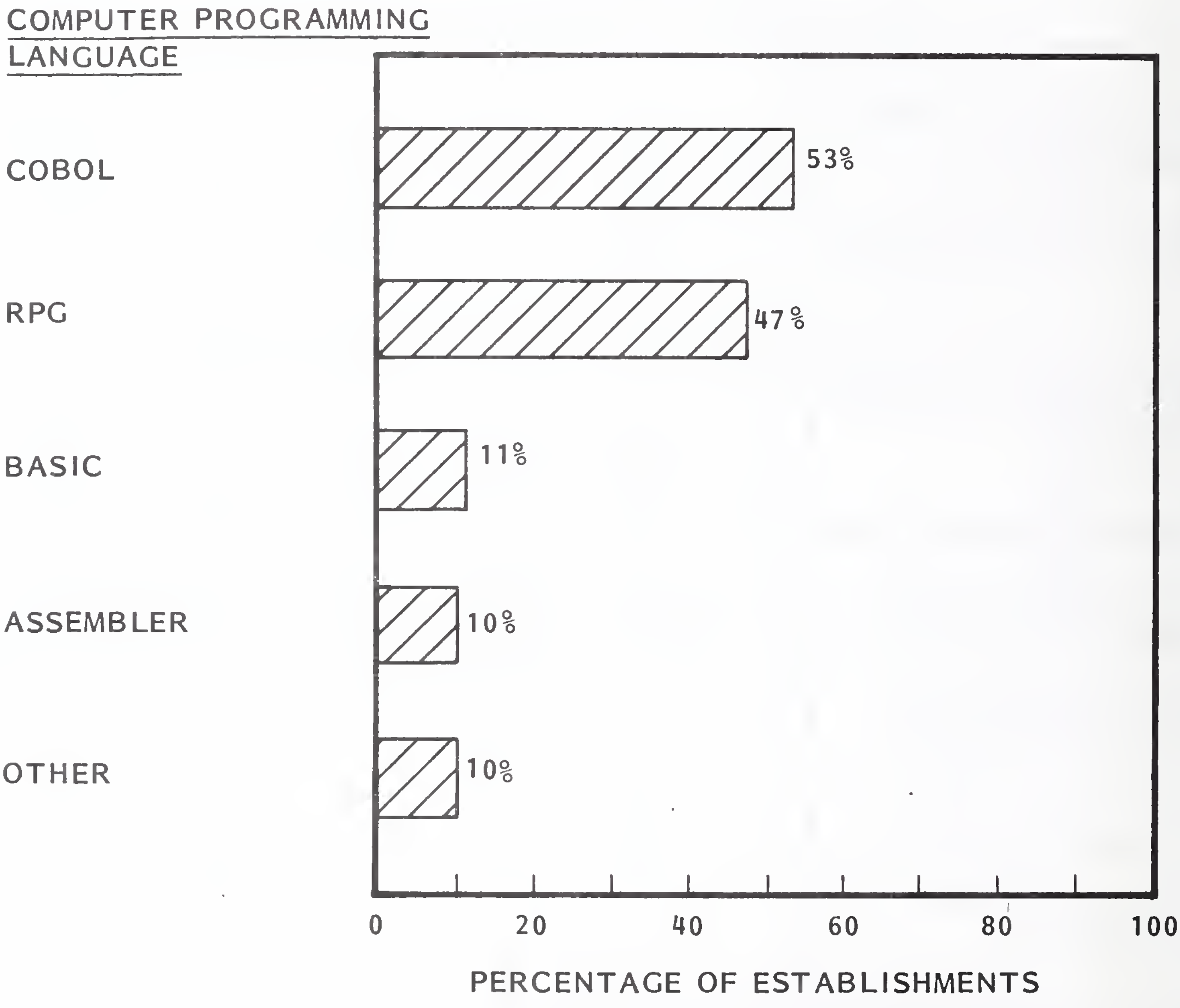
INSURANCE SERVICE SECTOR -
PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS -
INDEPENDENTS

APPLICATIONS	BRANCHES OF LARGE INDEPENDENT ESTABLISHMENTS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MARKETING AND SALES			
ORDER ENTRY	29%	63%	71%
SALES ANALYSIS	34	67	79
CREDIT AUTHORIZATION	34	63	75
ACCOUNTING & FINANCE			
PAYROLL	42	54	63
BILLING	29	71	83
ACCOUNTS RECEIVABLE	29	67	79
ACCOUNTS PAYABLE	33	67	75
GENERAL LEDGER	33	67	75
INDUSTRY SPECIFIC			
POLICY ACCOUNTING	0	8	8
POLICY WRITING	0	17	17
CLAIMS ACCOUNTING	21	42	58
OTHER INDUSTRY SPECIFIC	8	4	8

NUMBER OF RESPONDENTS = 24

EXHIBIT V-97

INSURANCE SERVICE SECTOR -
COMPUTER PROGRAMMING LANGUAGES USED ON COMPUTERS
INSTALLED AT RESPONDENTS' ESTABLISHMENTS



NUMBER OF RESPONDENTS = 19

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE LANGUAGES

c. Communications Equipment

- There appears to be no significant means of deciding when a company uses a keyset system or a PABX at independent establishments. Keysets and PABXs are intermixed in all size groups. Branches, however, seem to have rigid rules, all of the large establishments have Bell PABXs, all of the small agencies use keysets and the middle group (by number of employees) are divided - 43% use keysets and 57% use PABXs.

- The use of WATS lines, while not the highest among the industries studied, is in the upper brackets.

- For an industry that must be communications oriented - some agencies, especially the smaller ones, have more telephones than people - there seems to be a lack of sophistication concerning equipment and services. Their use of anything unusual is rare (Exhibit V-98) and in their comments concerning what equipment or services they would be looking for during the next two years no one mentioned any change in the communications area. Two small establishments complained of poor service, but everyone else ignored the communications topic.

- When prodded - that is specifically asked why they use the equipment and/or service that is currently installed - the answers were either "is there anything else?" or "it fits our needs and service is good."

- The recommendation that seems to sum up the situation is to provide an analyses service to help the agencies determine if some other communication modes might be a more economical choice for their particular circumstances. This service could be performed by a communications carrier, an interconnect company or a consultant. It should be a low key sales effort with the prime thrust towards providing information on available alternatives.

EXHIBIT V-98

INSURANCE SERVICE SECTOR - COMMUNICATIONS EQUIPMENT AND SERVICES USED BY RESPONDENTS (PERCENTAGE OF RESPONDENTS)

TYPE OF EQUIPMENT/SERVICE	INDEPENDENT ESTABLISHMENTS	BRANCHES OF LARGE CORPORATIONS
COMMUNICATIONS EQUIPMENT		
KEYSET	67%	48%
PABX	33	52
INTERCONNECT	13	0
FACSIMILE	0	4
COMMUNICATIONS SERVICES		
WIDE-AREA TELEPHONE SERVICE (WATS)	50%	52%
TELEX/TWX	8	26
LEASED LINES	13	0
NON-TELEPHONE COMPANY SUPPLIED SERVICES	0	0

NUMBER OF RESPONDENTS = 51

d. <u>Office Equipment Usage</u>

- The insurance industry stands out in its usage of advanced office equipment among small establishments. Since paper is the product in this industry it was one of the first to be approached by the text editor vendors. As the insurance companies bought equipment, the vendors turned toward the smaller offices. In Exhibit V-99 the use of electronic typewriters and standalone word processors by the independent agents is among the highest in any industry studied this year. With 41% of the branches using word processing equipment, it is obvious that a special effort was made by the vendors in this marketplace.

  - One large branch was using a six station shared logic word processor.

- Many establishments that do not have word processing equipment are evaluating its usefulness so that they can acquire some advance text editing equipment within the next two years. Some large respondents claimed that they do not have enough work for their word processing equipment and that they now feel it is not used enough, considering its cost.

  - It is important that vendors make sure their customers are fully aware of all the applications of the particular word processor installed at the site.

  - The insurance industry, and insurance agents in particular, are primed for word processing equipment and this attitude should not be destroyed by overselling individual customers.

- Plain paper copiers are clearly dominant in this forms oriented industry. No one vendor is outstandingly dominant in any segment of the small insurance agent's marketplace.

EXHIBIT V-99

INSURANCE SERVICE SECTOR -
OFFICE EQUIPMENT USED BY RESPONDENTS
(PERCENTAGE OF RESPONDENTS)

TYPE OF EQUIPMENT	INDEPENDENT ESTABLISHMENTS	BRANCHES OF LARGE CORPORATIONS
ELECTRONIC TYPEWRITERS	21%	15%
STANDALONE WORD PROCESSORS	25	41
COATED PAPER COPIERS	13	28
PLAIN PAPER COPIERS	92	80
DUPLICATING EQUIPMENT	0	4
PRINT SHOP	13	0

NUMBER OF RESPONDENTS = 51

- The larger establishments will be looking for additional copiers within the next two years. The large majority of respondents in all establishment sizes stressed that the quality of the copier output was much more important than the speed of the copier.

E. SERVICES GROUP

I. ANALYSIS BY ESTABLISHMENT SIZE

a. Demographics

- The Services Group includes broadcasting services, advertising services and medical services. Together the sectors of each industry chosen for the services group have over 135,000 establishments employing over 800,000 people.

- Advertising services and medical services have over 90% of their establishments in the small (1-19 employees) category, with medical being the dominant influence with over 97%. The key numbers compare with the national averages as follows:

  - For establishments:

	Percent of Establishments	
Establishment Size	National Average	SES Services Group
1-19 Employees	88.1%	96.3%
20-99 Employees	9.9	3.4
100-499 Employees	1.7	0.3

  - For Employees:

	Percent of Employees	
Establishment Size	National Average	SES Services Group
1-19 Employees	26.9%	64.7%
20-99 Employees	27.3	21.2
100-499 Employees	23.0	8.9

- For Employees/Establishment:

Establishment Size	Employees/Establishment National Average	Employees/Establishment SES Services Group
1-19 Employees	4.6	4.0
20-99 Employees	41.6	36.9
100-499 Employees	200.8	176.9
Overall	15.1	5.9

- Offices of physicians, which is the specific sector of the medical services industry studied in this report, are usually described in terms of the number of physicians employed - not the number of employees. In designing the interview program for this sector, the size group boundaries do not coincide with those of the other two industries in the Services Group. Even when the conversion is done, using the AMA and INPUT determined averages of 2.1 support employees for each physician, the boundaries are mismatched; thus:

SES Establishment Sizes	AMA Physician's Offices Sizes	Converted Using Number of Employees
1-19 Employees	1-6 MD's	3-18.6 Employees
20-99 Employees	7-19 MD's	21.7-58.9 Employees
100-499 Employees	20 or more MDs	62 employees and over

It was decided to collect the data according to the AMA groupings because a considerable body of validated demographic data existed which could be directly related to the freshly gathered information. Therefore, in this section the data cannot be validly combined because the group boundaries are different. The charts in this section only contain data pertinent to the combined broadcasting and advertising sectors. The concomitant medical services data will be found in the text within each subsection of the chapter.

b. Computer Equipment And Services Usage

(1) Computers And Services

- The Services industries are generally information and communications oriented. Overall 71% of the Services respondents, including medical, used computers in some way. This usage increases as the establishment size increases.

	Group Size	SES Services	Medical Services
-	Small	55%	47%
-	Medium	79%	78%
-	Large	93%	100%

- The percentage of establishments that have systems installed at their own facilities increases with the size of the establishment, except in medical where such installations decrease with increasing size (Exhibit V-100).

- Use of computer services increases with increasing establishment size with the independent establishments in the services group (Exhibit V-101) and in the medical sector.

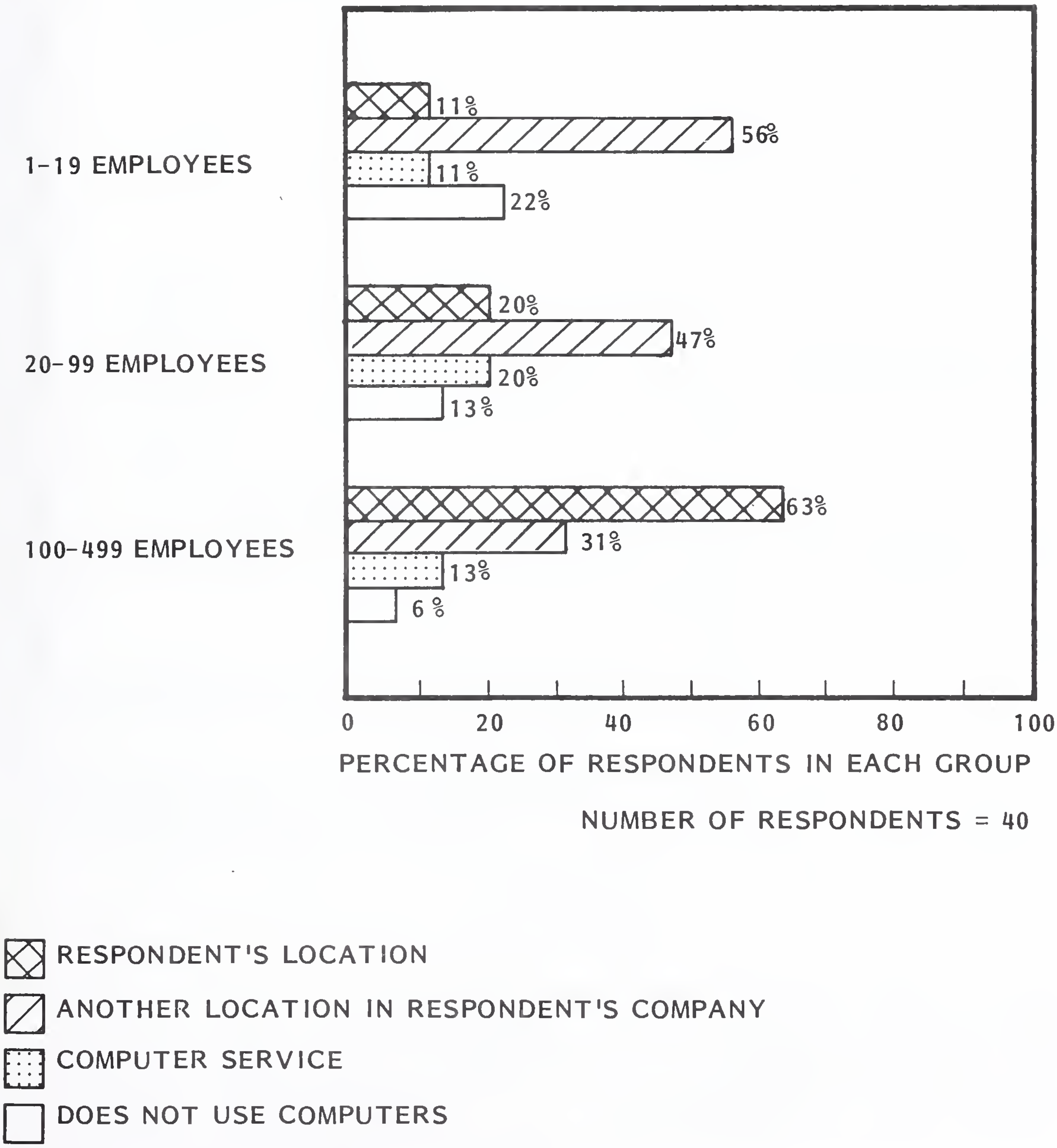
- The medical sector, especially physician's offices, always had to process a tremendous amount of paper. Each sale (patient visit) results in a small amount of revenue so many are needed to generate the large revenues in this industry. Each visit, however, generates an itemized bill plus insurance forms. Large offices or clinics moved to computer services early in order to get out from under the paper pile. Later, as systems became less expensive, more sedately styled, with software fit for the physician, the medium and smaller offices and clinics became viable prospects for system houses.

- Very little information that is manipulated by computers for the establishments in the Services Group, including medical, is very time dependent nor is there much interactive programming taking place. Virtually all of the small and medium size establishments depend upon mail or courier data delivery.

EXHIBIT V-100

SERVICES GROUP

LOCATION OF COMPUTERS OR COMPUTER SERVICES USED BY RESPONDENTS - BRANCHES

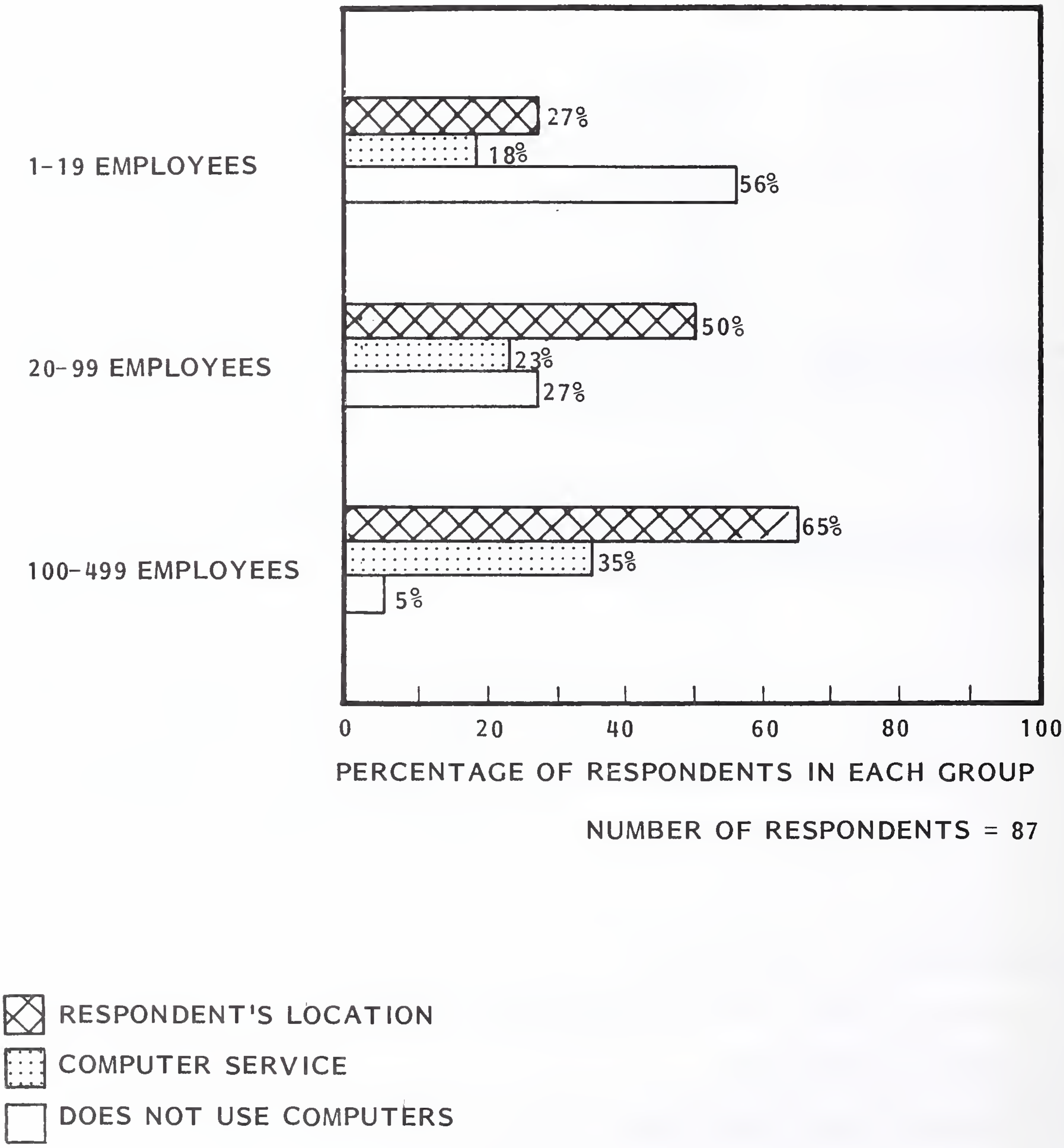


NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

EXHIBIT V-101

SERVICES GROUP

LOCATION OF COMPUTERS OR COMPUTER SERVICES USED BY RESPONDENTS - INDEPENDENTS



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

- The large size establishments (100-499 employees, 20 MDs or more) vary their methods of transmitting and receiving data. Many use several methods depending upon the particular need. Large medical groups are 100% on-line via batch or remote terminals while the average for the independents in the Services Group is only 41% (Exhibit V-102).

- The large medical services organizations, because of their size and therefore the volume of business they provide the computer service vendors, prefer not to do their own programming. The computer service firms do the programming for 57% of the physicians' offices. Much of the programming in the other small and medium size medical offices is also done by the computer service firms.

- Forty-three percent of the independent establishments write their own programs, while 24% use standard or modified standard programs (Exhibit V-103). The use of modified standard programs is the source of nearly 53% of the large size establishments applications. This source increases as establishment size increases.

- The use of standard program packages is not an important program source for the Services Group.

- Programs written by a software house are a moderately used source (24%) by all sizes of establishments, including the medical group.

- Even though the service establishments let others do the programs they do not let others own their equipment. Forty-six percent of the establishments (including medical) own their own systems. In medical services, the trend is to purchase regardless of the establishment size. This is not true in the other service sectors. The small size (1-19 employees) establishments tend to lease. As size increases so do the options used, and the rental of a system also enters the picture to a greater extent than in many other sectors. Medical services show a high rental figure of 25% as do the independent establishments (18%, as shown in Exhibit V-104).

EXHIBIT V-102

SERVICES GROUP -
METHODS RESPONDENTS USED TO SEND
AND RECEIVE DATA-
INDEPENDENTS

METHODS USED	PERCENTAGE OF INDEPENDENT ESTABLISHMENT RESPONDENTS
INTERACTIVE	12%
BATCH	29
VOICE (TELEPHONE)	6
PHYSICAL DELIVERY	59

NUMBER OF RESPONDENTS = 17

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE METHODS

EXHIBIT V-103

SERVICES GROUP -
METHODS OF OBAINING COMPUTER PROGRAMS -
INDEPENDENTS

METHODS USED	PERCENTAGE OF INDEPENDENT ESTABLISHMENT RESPONDENTS
USE STANDARD PROGRAMS	10%
MODIFY STANDARD PROGRAMS	24
WRITTEN BY A SOFTWARE HOUSE	33
WRITE OUR OWN	43

NUMBER OF RESPONDENTS = 21

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE METHODS

EXHIBIT V-104

SERVICES GROUP -
PRESENT TERMS OF ACQUIRING COMPUTER EQUIPMENT -
INDEPENDENTS

TERMS USED	PERCENTAGE OF INDEPENDENT ESTABLISHMENT RESPONDENTS
RENT	18%
LEASE	38
PURCHASE	50

NUMBER OF RESPONDENTS = 34

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TERMS

- Forty-seven percent of the services group establishments pay a flat monthly rate for computer services. This includes the flat rate charged by corporate headquarters and the base payments to outside computer service vendors. This method is used by all size establishments, including those in medical services.

- Forty-four percent of all of the establishments in the Service Group pay a "per transaction rate." This includes those that pay only this way, plus some of those that also pay a flat rate. This method of payment varies by establishment size and by sector. No small broadcasting or advertising establishment reported paying for services by transaction, but 77% of the small physicians offices did. Seventy-five percent of the medium and 29% of the large physicians offices also paid by transaction. In the other two sectors less than 50% in each size group paid by transaction, but 60% of the independents used this method (Exhibit V-105) as opposed to 26% of the branches.

- In general, when billing is a service company function, payment is by transaction. With payroll, about half pay a flat fee and about half pay by transaction plus a flat fee. In advertising, some special applications call for a payment for each use. Since very little interactive work is involved, payment plans are generally less complex than in other sectors.

(2) Communications Equipment

- Physicians' offices do not use communications equipment or services other than telephones to any significant degree.

- The other two industries in the SES Services Group are substantial users of WATS service, TELEX/TWX services and facsimile equipment. This usage increases as the size of the establishment increases as shown below:

EXHIBIT V-105

SERVICES GROUP -
METHOD USED TO PAY FOR COMPUTER SERVICES -
INDEPENDENTS

METHODS USED	PERCENTAGE OF INDEPENDENT ESTABLISHMENT RESPONDENTS
BY TRANSACTION	60%
BY TIME	3
FLAT MONTHLY RATE	43
OTHER	0

NUMBER OF RESPONDENTS = 30
NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE METHODS

Establishment Size	FAX	WATS	TELEX/TWX
	Percentage Of Establishments In Each Group Using		
1-19 Employees	10%	30%	25%
20-99 Employees	39	29	36
100-499 Employees	48	83	66
Overall	35	49	44

- Advertising agencies are heavy facsimile and WATS users. The applications for facsimile equipment include:

  - Advertising copy.
  - Layouts.
  - 8 x 11 Photos.
  - Artwork.
  - Contracts.
  - Story boards.
  - Letters, memos, financial reports.

  This information is very time dependent and is transmitted to newspapers, magazines, and to clients.

- Broadcasting establishments use TELEX/TWX services more than the small establishments and in addition subscribe to several private communications services for news, weather and financial information.

- All of the SES Services Group use telephones and the source of their service and equipment is the Bell system companies. However, 15% of all of the independent establishments, including medical, own their own equipment supplied by a company that does not provide common carrier services (Exhibit V-106). The medium size establishments report the most frequent use of interconnect equipment. Some establishments are not new to private telephone equipment with periods of five, seven, and nine years being mentioned. The primary reasons for using interconnect equipment are:

  - Lower costs.

  - Investment tax credit.

  - Convenience.

  - Had features needed.

(3) Office Equipment Usage

- Although the penetration may increase in large physician's offices and clinics, there is generally little need for text editing equipment.

- The large size (100-499 employees) establishments in the rest of the Services Group use memory typewriters and word processing equipment extensively. The penetration level for word processors is 41% and 34% for memory typewriters.

- In the medium size establishments memory typewriters and word processors have each achieved an 11% penetration level.

- Uses of text editing equipment by this group includes:

  - News releases.

EXHIBIT V-106

SERVICES GROUP -
SOURCES OF TELEPHONE EQUIPMENT -
INDEPENDENTS

SOURCES OF TELEPHONE EQUIPMENT	PERCENTAGE OF INDEPENDENT ESTABLISHMENT RESPONDENTS
BELL TELEPHONE COMPANIES	74%
OTHER TELEPHONE SERVICE COMPANIES	11
COMMUNICATIONS EQUIPMENT SUPPLIERS NOT SELLING CARRIER SERVICE	15

NUMBER OF RESPONDENTS = 80

- Sales records.

- Improve the edit process.

- Mail list and mass mailings.

- Commercial copy.

- Financial documents.

- General correspondence.

* Quality output, quick turnaround time and ease of operation are the three features of word processors desired by these respondents.

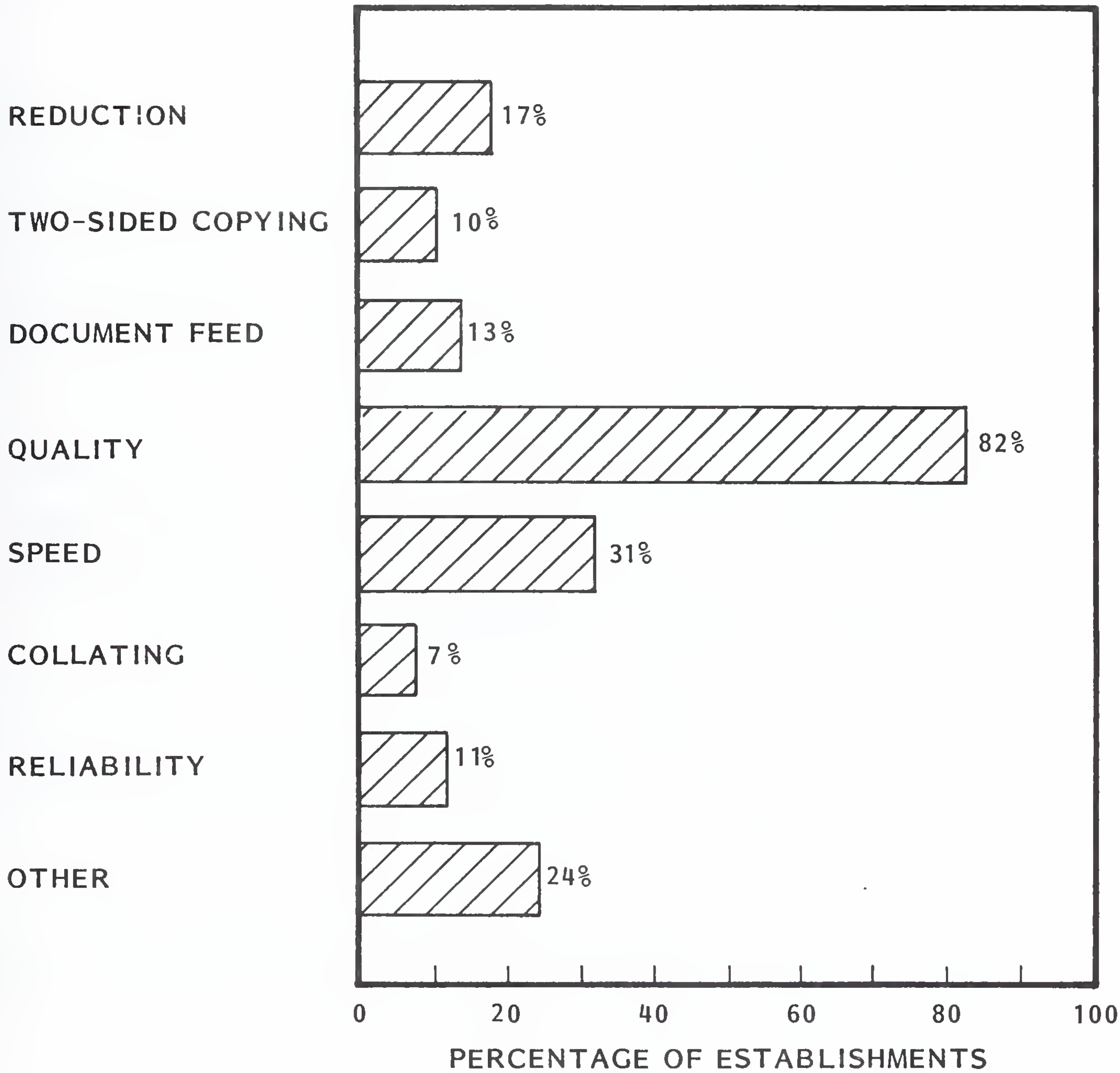
* One advertising respondent has a word processing system but does not use it. He trades its use for other equipment or services from clients. He claims to obtain all of his equipment by the barter method.

* Copiers are used by all establishments and plain paper copiers completely dominate all sectors except in the physician's offices where coated paper copiers are in 55% of the establishments. The reported copying load is not heavy, running from a few copies per day (under 10) to about 650/day. In the large size advertising establishments, 5,000 copies/day is not uncommon.

* Exhibit V-107 lists those features most desired by the SES Services Group. While quality was chosen most often, speed is also an important factor. The "other" category includes primarily good and prompt service, large size documents, and consistent color rendition. The requirements of those who use copiers the most do not differ from the rest of the respondents.

EXHIBIT V-107

SERVICES GROUP -
COPIER FEATURES DESIRED



NUMBER OF RESPONDENTS = 72

c. Needs And Plans For Improvement

(1) EDP

- Buying memory, terminals, new printers and expanding use of services from service vendors are the keynotes in the growth plans for the SES Services Group. Almost 65% of the independent establishments are planning such changes, with over 35% planning to upgrade their present system with a new one (Exhibit V-108).

- Applications is the important area for these sectors. There will be some expansion into industry specific applications, especially in the medical and broadcasting groups. In the medical area, system houses and computer service companies will provide the programs and in broadcasting, the computer service companies will be the providers. Both of these industries prefer to use computer service companies and/or system houses that are either dedicated to the industry or are very oriented to the particular industry.

- The reputation of the systems vendor is an important factor in buying new equipment (Exhibit V-109). This is true in all of the industries studied this year, but in the SES Services Group compatibility with larger systems rated very high with the independent establishments.

- Compatibility with a product line is always important in a growth situation where users are planning to expand rather than replace their systems. The thought of switching to non-compatible hardware and software is horrifying to many small establishments.

- Several respondents indicated no concern about the delay in IBM/System 38 deliveries, while others felt that delivery schedules were somewhat important.

EXHIBIT V-108

SERVICES GROUP - PLANS TO CHANGE OR MODIFY CURRENT COMPUTER SYSTEM DURING THE NEXT TWO YEARS - INDEPENDENTS

PLANS	PERCENTAGE OF INDEPENDENT ESTABLISHMENT REQUIREMENTS
ADD A COMPUTER	5%
MODIFY PRESENT COMPUTER	23
REPLACE PRESENT COMPUTER WITH A NEW COMPUTER	36
REPLACE PRESENT COMPUTER WITH A COMPUTER SERVICE	0
NO PLANNED CHANGE	36

NUMBER OF RESPONDENTS = 22

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO RESPONDENTS PLANNING MULTIPLE CHANGES

EXHIBIT V-109

SERVICES GROUP -
IMPORTANCE OF FACTORS IN CHOOSING COMPUTERS -
INDEPENDENTS

FACTORS	RATING
SUPPORT	2.1
AVAILABLE SOFTWARE	1.7
DELIVERY SCHEDULE	1.9
VENDOR REPUTATION	2.2
AVAILABLE HARDWARE	2.1
COMPATIBILITY WITH LARGER SYSTEMS	2.3

RATINGS: VERY IMPORTANT = 3
SOMEWHAT IMPORTANT = 2
SLIGHTLY IMPORTANT = 1
UNIMPORTANT = 0

(2) Communications

- Efforts during the next two years will be directed towards expansion with cost maintenance a primary objective. Switching to establishment owned equipment, taking on WATS service, etc., are means of accomplishing this goal.

- There are no expressed plans to expand facsimile usage or buy new equipment nor did any respondent indicate expansion to TELEX/TWX or leased lines, etc. The needs that these services would satisfy are already satisfied.

(3) Office

- Copiers and word processors are at the forefront of the respondent's plans for the coming two years. These plans cross all establishment size groups, though more interest is shown by the larger establishments.

- Word processors are expected to be used for applications similar to those already automated in the particular industries. Some establishments will purchase additional equipment to handle specific applications - the jobs are big enough to justify it.

- Copiers will be both replacement systems for better quality and/or speed and additional systems for expanded needs.

d. Budgeting

- Twenty-four percent of the independent respondents budget for information processing equipment and services based upon a predetermined percentage of either last year's revenue or the projected current year's revenue and 62% handle these items on an individual basis (Exhibit V-110).

EXHIBIT V-110

SERVICES GROUP -
BASIS FOR BUDGETING FOR INFORMATION
HANDLING EQUIPMENT AND SERVICES-
INDEPENDENTS

BUDGETING BASIS	PERCENTAGE OF INDEPENDENT ESTABLISHMENT REQUIREMENTS
PERCENT OF REVENUE	15%
LAST YEAR'S CONSUMABLE COST	9
HANDLE ON AN INDIVIDUAL BASIS	62
OTHER	15

NUMBER OF RESPONDENTS = 34

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE METHODS

- The approach to selling to small establishments is frequently dependent upon the way monies are made available. Since there is no dominant method used nor any size trends, each establishment must be qualified from this aspect early in the sales plan.

2. UTILITIES - RADIO AND TELEVISION BROADCASTING

a. Industry Characteristics

- The broadcasting sector includes stations that disseminate aural and visual programs by radio to the public. Stations selling time for broadcast purposes and the furnishing of program material are also included.

- The broadcasting sector consists of over 6,300 establishments employing about 163,000 employees. The total revenues (1976) are about $7.2 billion derived from the two major segments in the following proportions:

	Establishments	Revenue
Radio	5,638	$2.0 B
TV	701	5.2 B

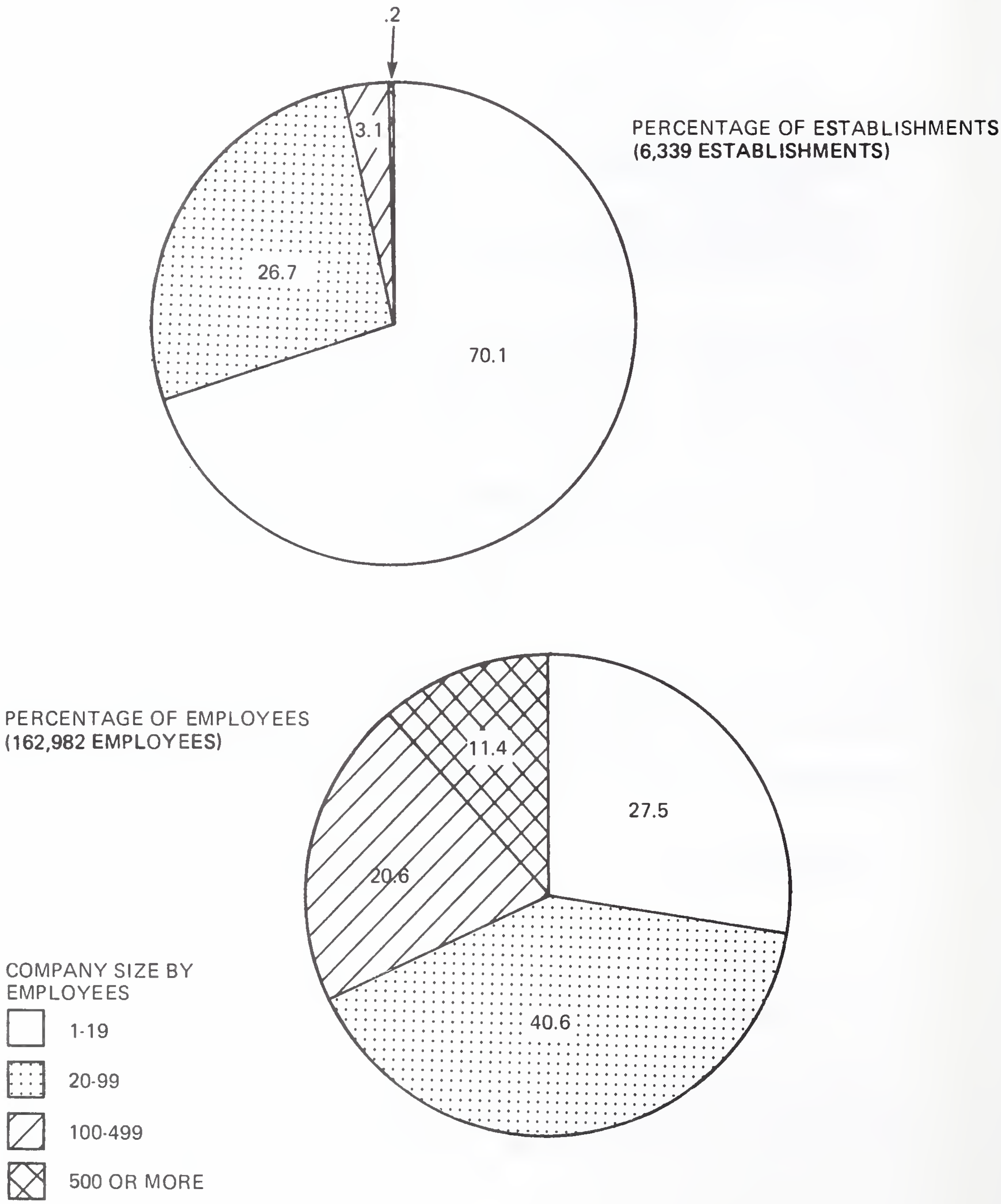
- The revenues per employee of $44,000 is one of the lowest of all the industries studied and shows the labor intensiveness of the broadcasting industry. This is emphasized by the very high number of employees in the small establishments:

Establishment Size	Employees/Establishment
1-19	10
20-99	39
100-499	172

as derived from Exhibit V-111. The medium and large establishments do not have a higher than average number of employees. The implication is that a

EXHIBIT V-111

STRUCTURE OF THE BROADCASTING SECTOR
(1976 DATA)



certain base number of employees is necessary to begin a commercial station, especially a commercial TV station.

b. Computer Equipment And Services Usage

- Overall, 21% of the respondents do not use computers at all. The pattern of non-usage is interesting and perhaps indicates a gap that needs to be filled by a service company (Exhibit V-112).

  - One hundred percent of the small branch establishments use computers; 50% get service from the parent company, 25% have their own systems and 25% use an outside service company.

- The small independent stations show a different pattern:

  - Sixty-six percent do not use computers at all, 17% have their own system and 17% use a service company.

- Since service companies are accepted by this industry, these small establishments should be investigated.

- Within the next size category (20-99 employees) the pattern between the branches and independents is again very different:

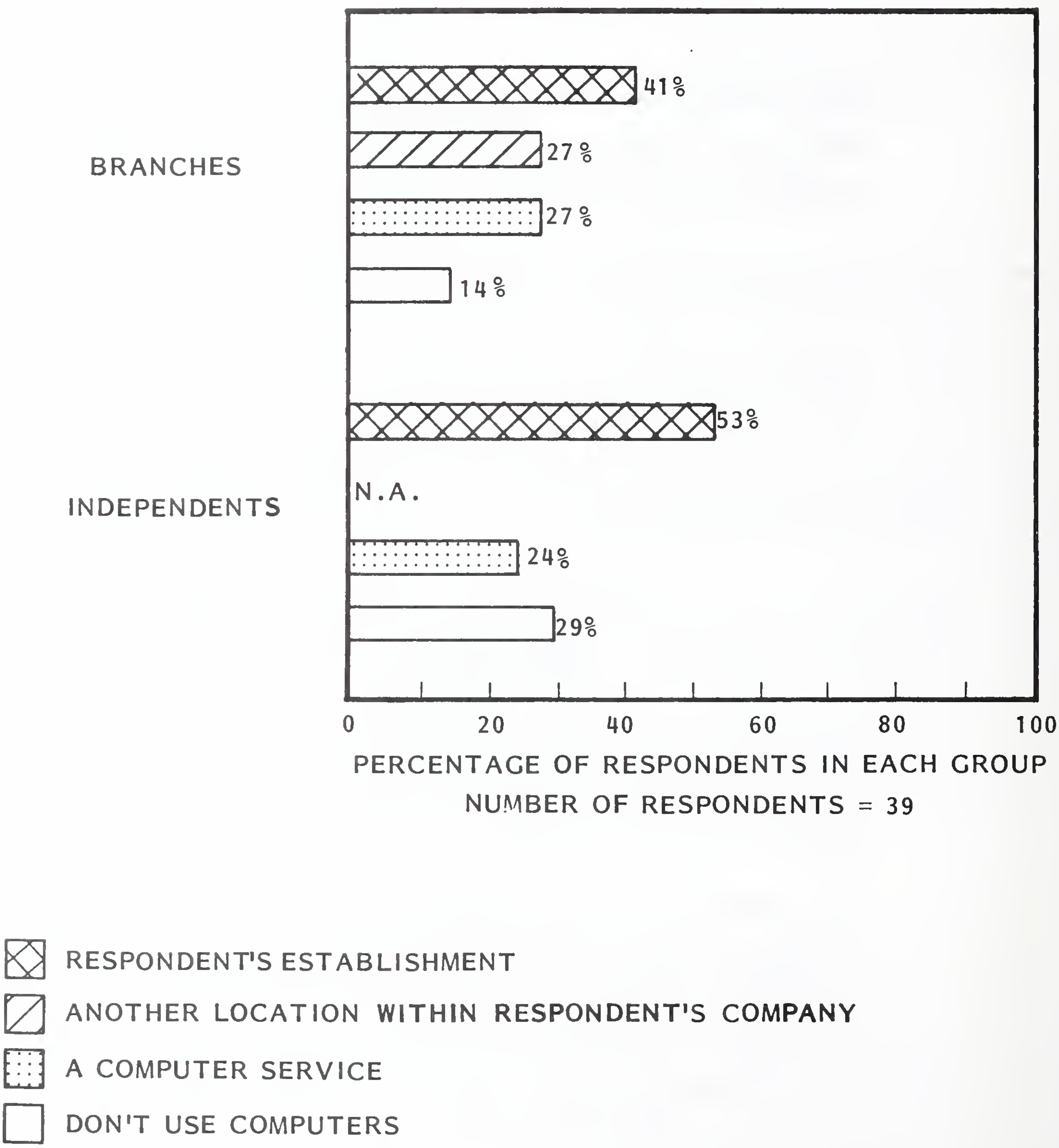
  - Now 22% of the medium size branch stations make no use of computers, only 11% have their own systems, and 67% use either the parent company or outside services.

  - Sixty percent of the independents, have their own systems, 20% still do not use computers and 20% use an outside services company. No respondent who had his own system also used outside services.

- The differences disappear at the large company level (100-499 employees).

EXHIBIT V-112

BROADCASTING SECTOR -
LOCATION OF COMPUTERS OR COMPUTER SERVICES
USED BY RESPONDENTS
(1979)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

- Seventy-eight percent of the branches and 83% of the independents have their own system, 33% of both groups use a service center, but still 11% of the branches make no use of computers. In this group those that have their own system still use a service center for some work.

• An overall comparison of the branches versus the independent broadcasters, shows that during the next five years there will be a small increase in the establishments with their own systems and this will generally be at the expense of the other categories on Exhibit V-113.

• The differences between the independents and branches show up by establishment size.

  - All of the small branch respondents will switch from using outside services to their own systems. None of the small independents will do so.

  - None of the mid-range branch services users will switch to their own systems by 1984, but all of the mid-size independents will.

  - There will be no change in the use of service companies in the large size companies, but those not using computers currently will all be using their own system by 1984.

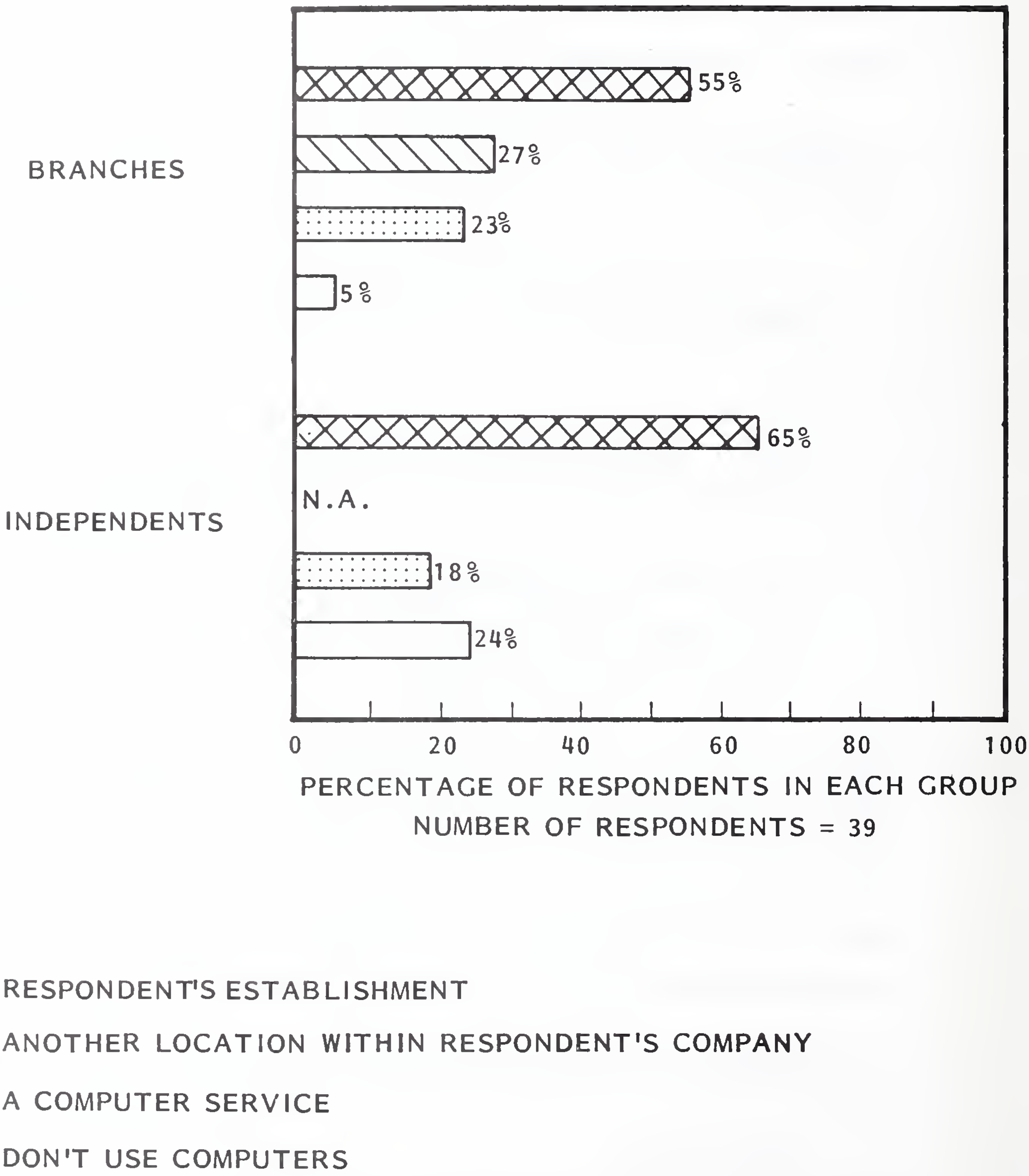
• More than half (56%) of the companies using services depend upon the mails or couriers to move data to and from the servicing organization. Only 17% communicate interactively. There are specialized outside service companies that provide computer services to the broadcasting industry. While the bulk of the applications are generally routine (Exhibit V-114 and V-115), the service companies do have very special application programs for the broadcasters.

• Some of the more frequently mentioned applications are:

  - Program Logs.

EXHIBIT V-113

BROADCASTING SECTOR -
LOCATION OF COMPUTERS OR COMPUTER SERVICES
USED BY RESPONDENTS
(1984)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

EXHIBIT V-114

BROADCASTING SECTOR -
PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS -
BRANCHES

APPLICATIONS	BRANCHES OF LARGE CORPORATIONS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MARKETING AND SALES			
ORDER ENTRY	38%	48%	52%
SALES ANALYSIS	38	52	62
CREDIT AUTHORIZATION	43	33	43
ACCOUNTING & FINANCE			
PAYROLL	24	71	76
BILLING	33	67	76
ACCOUNTS RECEIVABLE	33	67	76
ACCOUNTS PAYABLE	33	67	76
GENERAL LEDGER	33	62	71
DISTRIBUTION			
ORDER ALLOCATION	5	5	10
SHIPPING	5	0	5
STOCK REPLENISHMENT	5	0	5
PURCHASING			
INVENTORY CONTROL	33	19	29
RECEIVING	14	0	5

NUMBER OF RESPONDENTS = 21

EXHIBIT V-115

BROADCASTING SECTOR -
PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS -
INDEPENDENTS

APPLICATIONS	INDEPENDENT ESTABLISHMENTS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MARKETING AND SALES			
ORDER ENTRY	47%	47%	47%
SALES ANALYSIS	47	53	53
CREDIT AUTHORIZATION	35	53	53
ACCOUNTING & FINANCE			
PAYROLL	35	65	71
BILLING	35	65	71
ACCOUNTS RECEIVABLE	35	65	71
ACCOUNTS PAYABLE	24	71	76
GENERAL LEDGER	24	71	76
OTHER ACCOUNTING/ FINANCE	0	6	6
DISTRIBUTION			
ORDER ALLOCATION	0	0	0
SHIPPING	0	0	0
STOCK REPLENISHMENT	0	0	0
PURCHASING			
INVENTORY CONTROL	6	0	0
RECEIVING	6	0	0

NUMBER OF RESPONDENTS = 17

- Air Time Management.

- Studio Scheduling.

- Some of the less frequently mentioned applications are:

  - Commercial spots.

  - Traffic analysis.

  - Continuity.

  - Cable TV rates.

  - Copyrights.

- Considerably more independent broadcasters report having automated these applications than the branches. The parent companies of the branches most likely do this work for them.

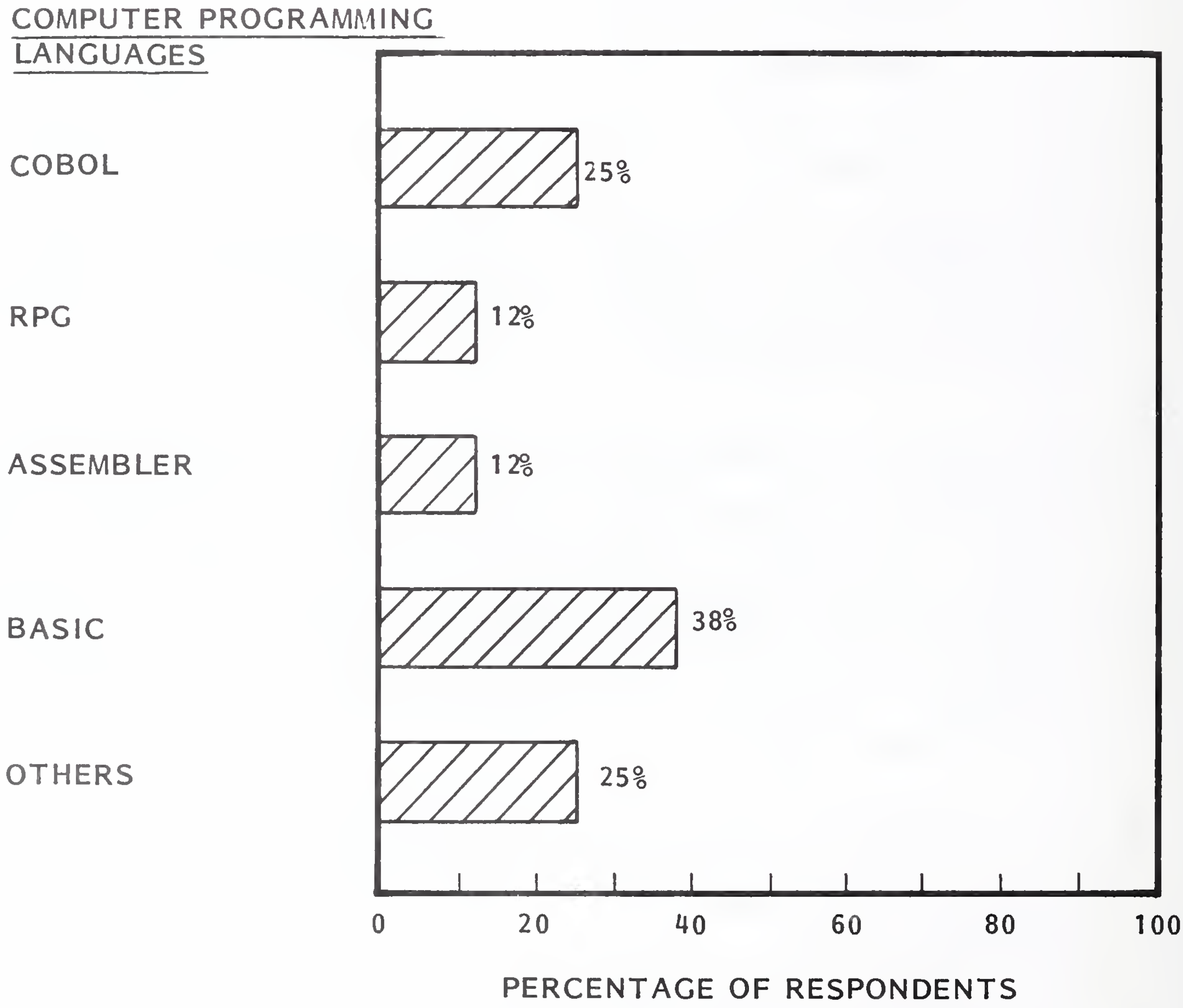
- Only 21% of the respondents could name the language that was used at their installation. Very surprisingly the most frequently used language is BASIC (38%), with COBOL second (25%) (see Exhibit V-116). Compare this with the types of systems installed and the reason is apparent. Only 14% of the systems are from IBM. Most (72%) of the others have BASIC as their prime language. While COBOL is available on most of the systems, BASIC is much easier to learn and to use.

- The respondents reported very little expected change in either additionally automating the standard business functions or in the special broadcasting functions.

- The tone of the broadcasters was positive. Those that recently bought systems feel it improved their service to customers immensely . Many were looking

EXHIBIT V-116

BROADCASTING SECTOR - COMPUTER PROGRAMMING LANGUAGES USED ON COMPUTERS INSTALLED AT RESPONDENTS' ESTABLISHMENTS



NOTE: TOTALS MAY NOT EQUAL 100% DUE TO SOME RESPONDENTS USING MORE THAN ONE PROGRAMMING LANGUAGE

forward to expanding their systems or buying new ones. Some branches said it was up to the home office to decide if they received their own system but, it was stressed, they feel they justified it themselves.

c. Communications Equipment

- Broadcasting, part of the communications sector of the economy, enjoys the range of equipment and services available (Exhibit V-117):

  - As in most of the industries studied, PABXs are used more by the branches of large corporations than by the independents.

  - As a group, the establishments are aware of the advantages of interconnect equipment and about 13% use it - primarily for economic reasons.

  - Twenty-one percent of the respondents use facsimile equipment but the majority of that usage is for sending and receiving material between the parent company and the branches. The items most frequently "faxed" are: news, new ideas, internal memos, etc. At one station the news director works at home and material is "faxed" between his house and the station.

  - WATS lines and TELEX/TWX services are employed at above average frequency, with the branches reporting more use than the independents. Again, it helps keep costs down in communicating with the home office.

  - The independents make more use of leased lines to specific clients and use long distance lines of alternating carriers whenever possible.

  - TELEX and TWX lines are used for weather and news services.

EXHIBIT V-117

BROADCASTING SECTOR -
COMMUNICATIONS EQUIPMENT AND SERVICES USED
BY RESPONDENTS
(PERCENTAGE OF RESPONDENTS)

TYPE OF EQUIPMENT/SERVICE	INDEPENDENT ESTABLISHMENTS	BRANCHES OF LARGE CORPORATIONS
COMMUNICATIONS EQUIPMENT		
KEYSET	76%	59%
PABX	24	41
INTERCONNECT	12	14
FACSIMILE	6	32
COMMUNICATIONS SERVICES		
WIDE-AREA TELEPHONE SERVICE (WATS)	35	59
TELEX/TWX	47	73
LEASED LINES	12	5
NON-TELEPHONE COMPANY SUPPLIED SERVICES	12	0

NUMBER OF RESPONDENTS = 39

- Almost 50% of the independents have recently bought new phones, had analyses done on their system, or will make some changes within two years. One respondent suggested using a radio line instead of a phone because it is much less expensive.

d. Office Equipment Usage

- Broadcasting is not generally considered a paper work industry and their use of the latest office automating equipment is not very high. However, 24% of branches use electronic typewriters (Exhibit V-118) and this seems comparatively high. It is probably a first step towards word processing equipment of greater sophistication. One percent of the responding broadcasters use standalone word processors and none use multi station equipment.

- Those that had word processing equipment felt it helped ease the paperwork load especially with program logs. Others felt that word processing equipment would really help, but couldn't say when they might spend the money for it. Sales literature is another area where word processing has helped ease the work load.

- Apparently time is the crucial factor in acknowledgements and some of the larger respondents felt word processing for their correspondence could be justified.

- Plain paper copiers dominate and a small portion of the branches have both types, while none of the independents use coated paper copiers.

- The independents felt speed and output quality were the copier features they would look for when going to the marketplace. The branches put dependability first, quality of output second, and price third.

EXHIBIT V-118

BROADCASTING SECTOR - OFFICE EQUIPMENT USED BY RESPONDENTS (PERCENTAGE OF RESPONDENTS)

TYPE OF EQUIPMENT	INDEPENDENT ESTABLISHMENTS	BRANCHES OF LARGE CORPORATIONS
ELECTRONIC TYPEWRITERS	0	24%
STANDALONE WORD PROCESSORS	12%	9
COATED PAPER COPIERS	0	14
PLAIN PAPER COPIERS	94	95
DUPLICATING EQUIPMENT	0	9
PRINT SHOP	0	0

NUMBER OF RESPONDENTS = 39

3. BUSINESS SERVICES - ADVERTISING

a. Industry Characteristics

- Advertising agencies primarily prepare advertising (write copy, art work, graphics, and other creative work) and place such advertising in periodicals, newspapers, radio and television or other advertising media for clients on a commission or fee basis. The sector does not include the companies that:

  - Place advertising with media but do not perform creative work.

  - Write advertising copy but do not place the advertising with media.

  - Provide services in commercial art and graphics but do not place advertising with media.

  - Other creative services that do not place advertising with media.

- In 1976 there were almost 7,000 advertising agencies in the U.S. employing just under 80,000 people (Exhibit V-119). The estimated 1976 revenue is $8.7 billion. This averages to about $111,000/employee.

- This is a labor intensive business. However, there are many one man shops, so the average number of employees in the 1-19 category is smaller than some other industries, but the middle and large establishments have a higher than usual average.

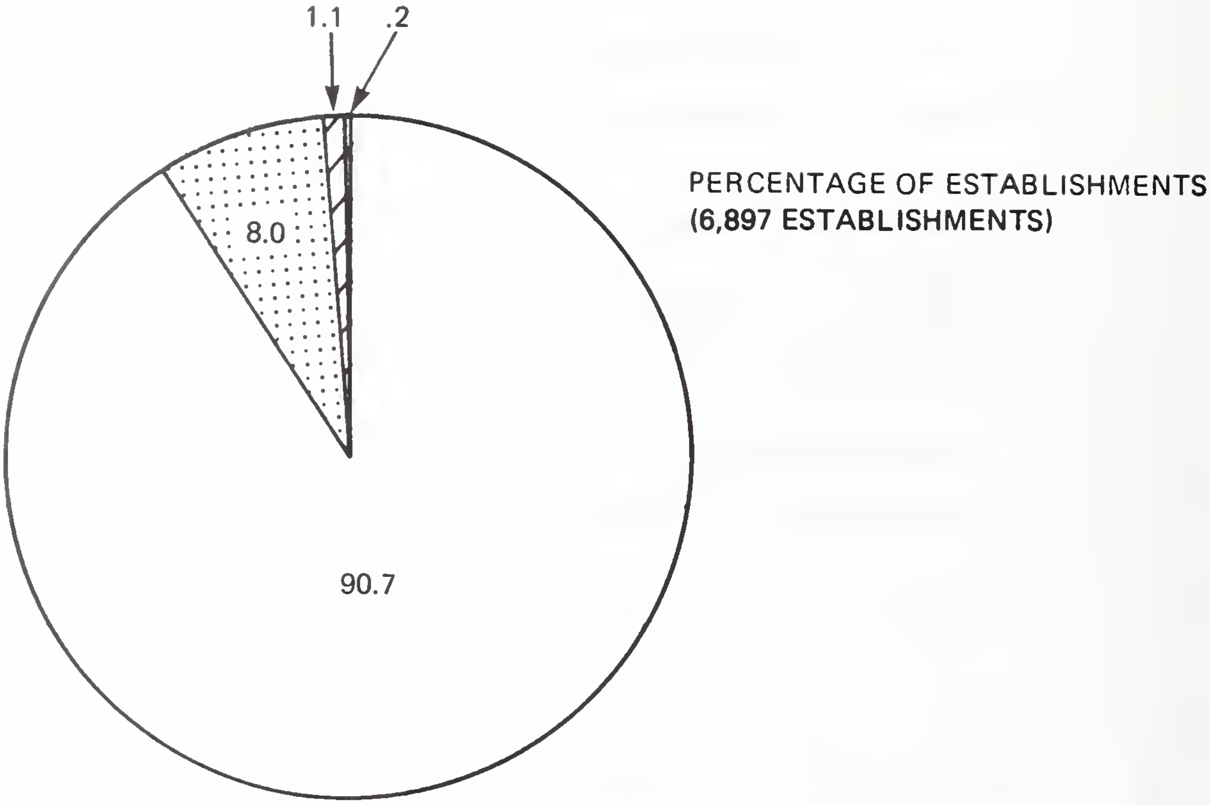
Establishment Size	Employees/Establishment
1-19 Employees	4.9
20-99 Employees	40.3
100-499 Employees	200.9

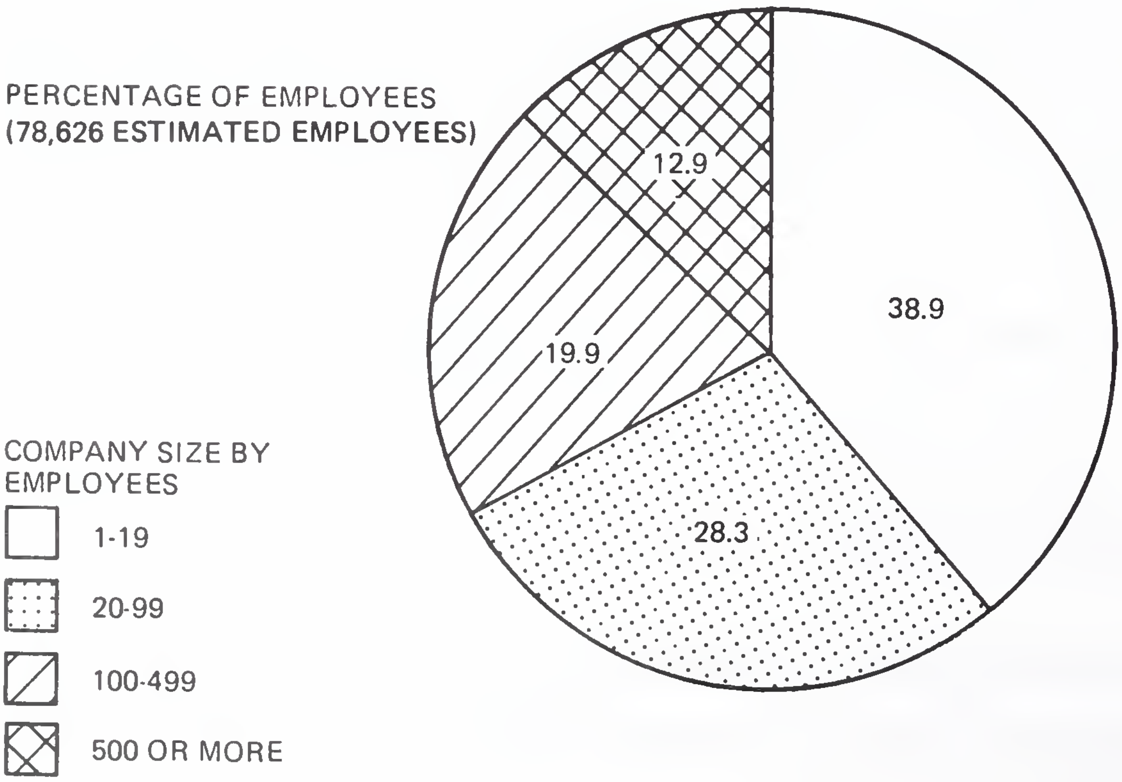
- These advertising agencies represent about 72% of the establishments, 69% of the employees and 75% of the revenue of the entire advertising sector which also includes:

EXHIBIT V-119

STRUCTURE OF THE ADVERTISING SECTOR

(1976 DATA)





- Outdoor advertising services.

- Radio, TV, and publisher representatives as minor segments.

b. Computer Equipment And Services Usage

- The advertising agencies are familiar with the latest in technology but they are not computer oriented. No branch, for example, uses an outside computer service and only 15% of the independents use such a service. The branches do make use of their home office system in place of getting an on-the-premises system or using a service company. The parent company may use an outside computer service for special applications.

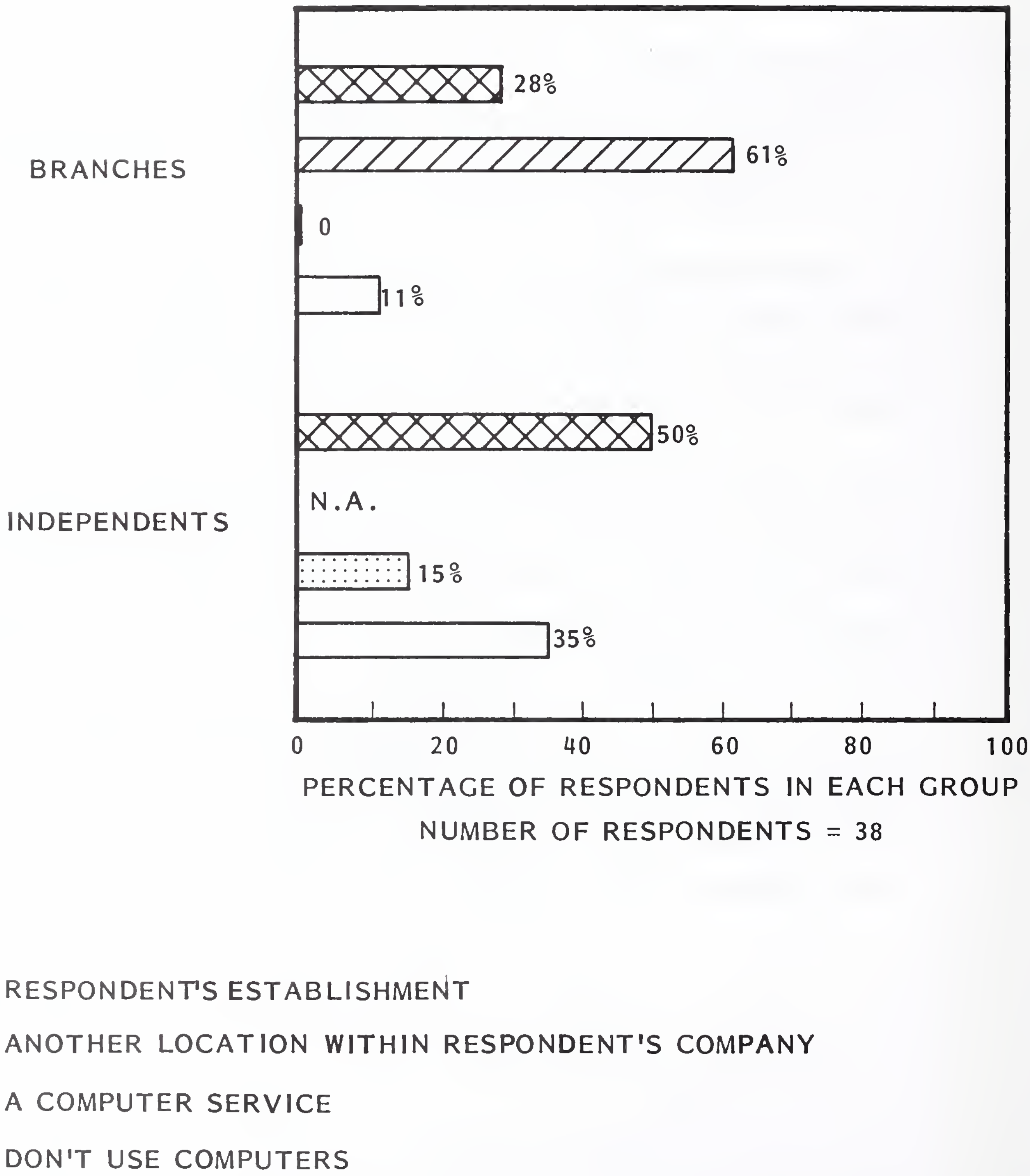
- The independent agencies, not having a home office computer to use, had to decide between buying their own system or using a service bureau. Most chose to buy their own system. Twice as many independents had an in-house computer system compared with the branches (Exhibit V-120).

- Overall, 35% of the independent establishments do not use computers at all and this rises to 60% in the 1-19 employee size category. In the 100-499 employee size group of independents, 71% have their own system. It is interesting to note that no independent agency uses both its own system and an outside service company.

- All advertising branches of large corporations with over 20 employees are using computers. Thirty-eight percent have their own system and 62% use the parent company system. No branch with under 20 employees has its own system and 40% do not use computers at all.

EXHIBIT V-120

ADVERTISING SECTOR -
LOCATION OF COMPUTERS OR COMPUTER
SERVICES USED BY RESPONDENTS
(1979)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

- Overall, 37% of the respondents use computer services. Over 80% send and receive their data, transactions, etc., by the U.S. mail or by courier service. There is no requirement for faster response time with computer data.

- There is a significant difference between the independent agencies and the branches with respect to the functions that have been automated. Almost 90% of the branches have automated the standard marketing and financial functions, while only the 50% level is reached by the independents in the financial area and only the 35% level is reached in the marketing area.

- This industry has special requirements for market research using data bases that are extremely specialized. Several computer timesharing firms service the advertising industry with interactive services using this data base for media research. The data is prepared for the computer service vendors in machine readable form (usually magnetic tape) periodically, with the period depending upon the particular data base, by market researchs firms also serving this specific very narrow market.

- Some industry specific applications are:

  - General media research.

  - TV audience estimation.

  - Print media selection optimization.

  - Media management system.

  - Post anlaysis for TV media research.

  - Reach and frequency analysis.

  - Cost per million (CPM) analysis.

- What will 1984 bring? Very little change. The branches will not change at all. No respondent from a branch of a large company expected any changes to take place during the next five years. Exhibit V-121 shows no change in the level of automation. Exhibit V-122 shows no change in the application area and they claimed no improvements are needed. The major comment received concerning improvements to be made during the next two years was - "we are moving to a new location" - made by 20% of the branch respondents.

- The independent agencies are only slightly better (Exhibit V-123). Some additional independents will be getting new systems, some will be adding new applications and one will be using a computer service company soon. Again, everything is fine in this business - not one respondent could think of any information handling problem areas in their respective companies.

- This stagnant, closed feeling is in marked contrast to the ebullience usually associated with the advertising business.

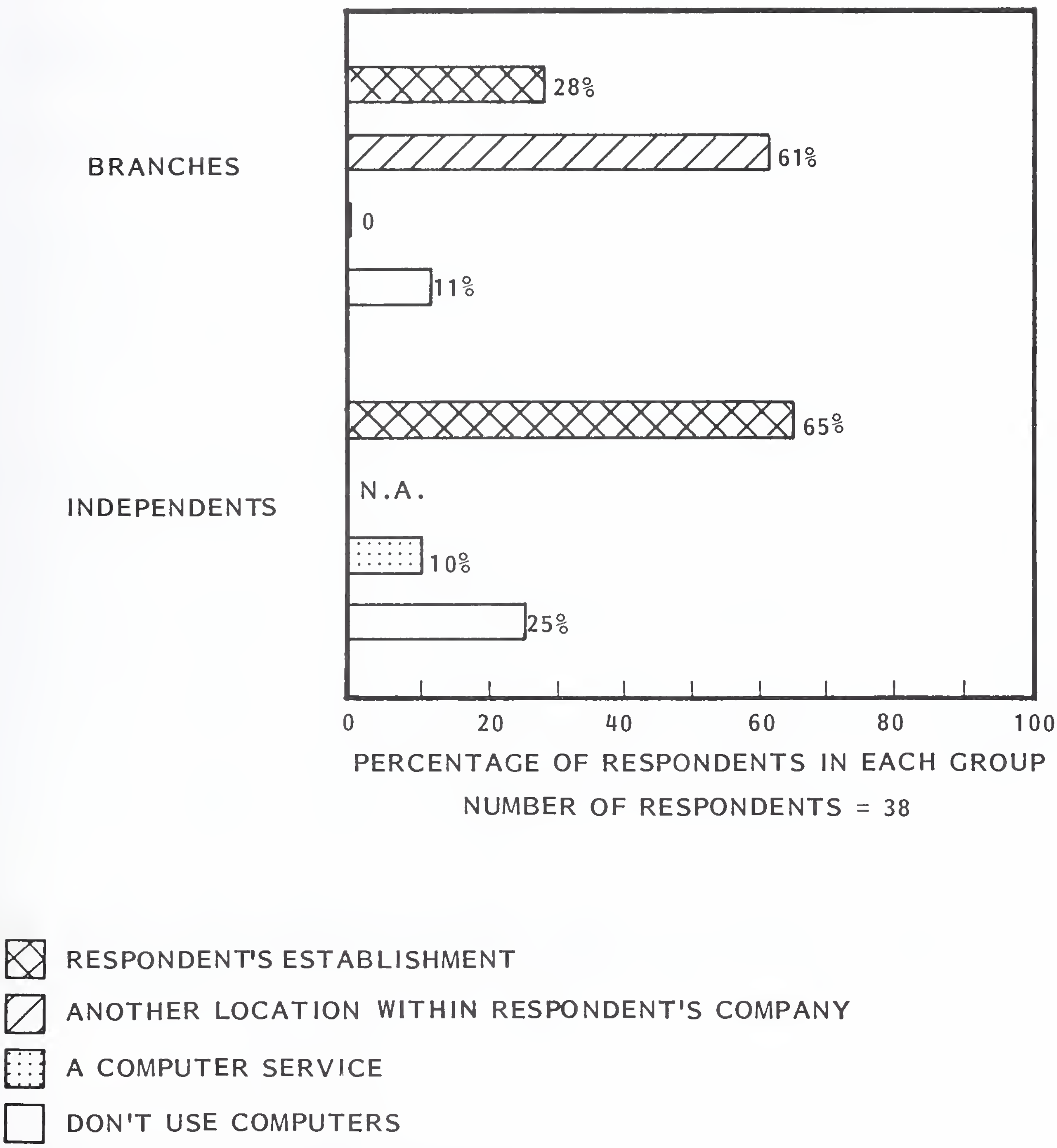
- Nevertheless, there maybe some market opportunities for computer service firms due to the localization of the currently available services in the New York City area. The industry specific applications based upon a reputable data base might be sold to firms distant from the band I WATS area around New York. The justification would have to be economic. The risks are many:

  - The data base is costly to obtain and maintain. The industry is generally closed to outsiders. The programs most likely cannot be sold to others and a very special support staff will be required to help customers interpret the computed results.

- The potential customers are not only independent agencies, but advertising departments of large companies and the media themselves. Branches of advertising companies are not usually potential customers because this work is not done at the branch level.

EXHIBIT V-121

ADVERTISING SECTOR -
LOCATION OF COMPUTERS OR COMPUTER SERVICES
USED BY RESPONDENTS
(1984)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

EXHIBIT V-122

ADVERTISING SECTOR - PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS - BRANCHES

APPLICATIONS	BRANCHES OF LARGE CORPORATIONS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MARKETING AND SALES			
ORDER ENTRY	12%	82%	82%
SALES ANALYSIS	12	88	88
CREDIT AUTHORIZATION	12	82	82
ACCOUNTING & FINANCE			
PAYROLL	12	88	88
BILLING	12	88	88
ACCOUNTS RECEIVABLE	12	88	88
ACCOUNTS PAYABLE	12	88	88
GENERAL LEDGER	12	88	88
PURCHASING			
INVENTORY CONTROL	6	18	18
RECEIVING	6	6	6
INDUSTRY SPECIFIC	0	24	24

NUMBER OF RESPONDENTS = 17

EXHIBIT V-123

ADVERTISING SECTOR -
PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS -
INDEPENDENTS

APPLICATIONS	INDEPENDENT ESTABLISHMENTS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
MARKETING AND SALES			
ORDER ENTRY	53%	26%	37%
SALES ANALYSIS	53	37	69
CREDIT AUTHORIZATION	53	37	69
ACCOUNTING & FINANCE			
PAYROLL	47	53	74
BILLING	47	42	68
ACCOUNTS RECEIVABLE	42	58	74
ACCOUNTS PAYABLE	42	58	74
GENERAL LEDGER	42	58	74
PURCHASING			
INVENTORY CONTROL	16	16	21
RECEIVING	5	0	0
INDUSTRY SPECIFIC	0	16	16

NUMBER OF RESPONDENTS = 19

c. Communications Equipment

- As mentioned before, this industry is "with it" when it comes to high technology equipment. As can be seen in Exhibit V-124 there is equal usage of keyset and PABXs by both branches and independent establishments. There is more than just an awareness of private telephone systems with a combined usage rate of 24%, and there is an extremely high utilization of facsimile equipment.

- Fully 50% of the respondents use facsimile equipment. Exhibit V-125 shows the types of material transmitted. Time, not cost, is the important factor. The use of fax equipment is spread throughout all sizes of establishments. Use varies with the size of the firm. The smaller establishments restrict fax use to advertising copy and art layouts. As the establishments increase in size, more general intra-company memos, reports and other ordinary typed material is transmitted.

- Half of all the respondents and 65% of the larger establishments use WATS. The increase in WATS lines parallels the increase in the use of facsimile equipment for routine memoranda and perhaps the "free" telephone may be the reason for the increase in use, or conversely, the establishments may have wanted to make more use of the fax equipment once it was installed and so they went to WATS to reduce the cost.

- While the branches are spending their time moving to new locations, the independents will be looking into expanding their existing or acquiring new telephone systems. There seems to be an opportunity that should be watched if not exploited. This set of establishments is not afraid of advanced equipment, new ideas, or of being "pioneers." They need more flexible voice communications systems and will be buying during the coming two years.

EXHIBIT V-124

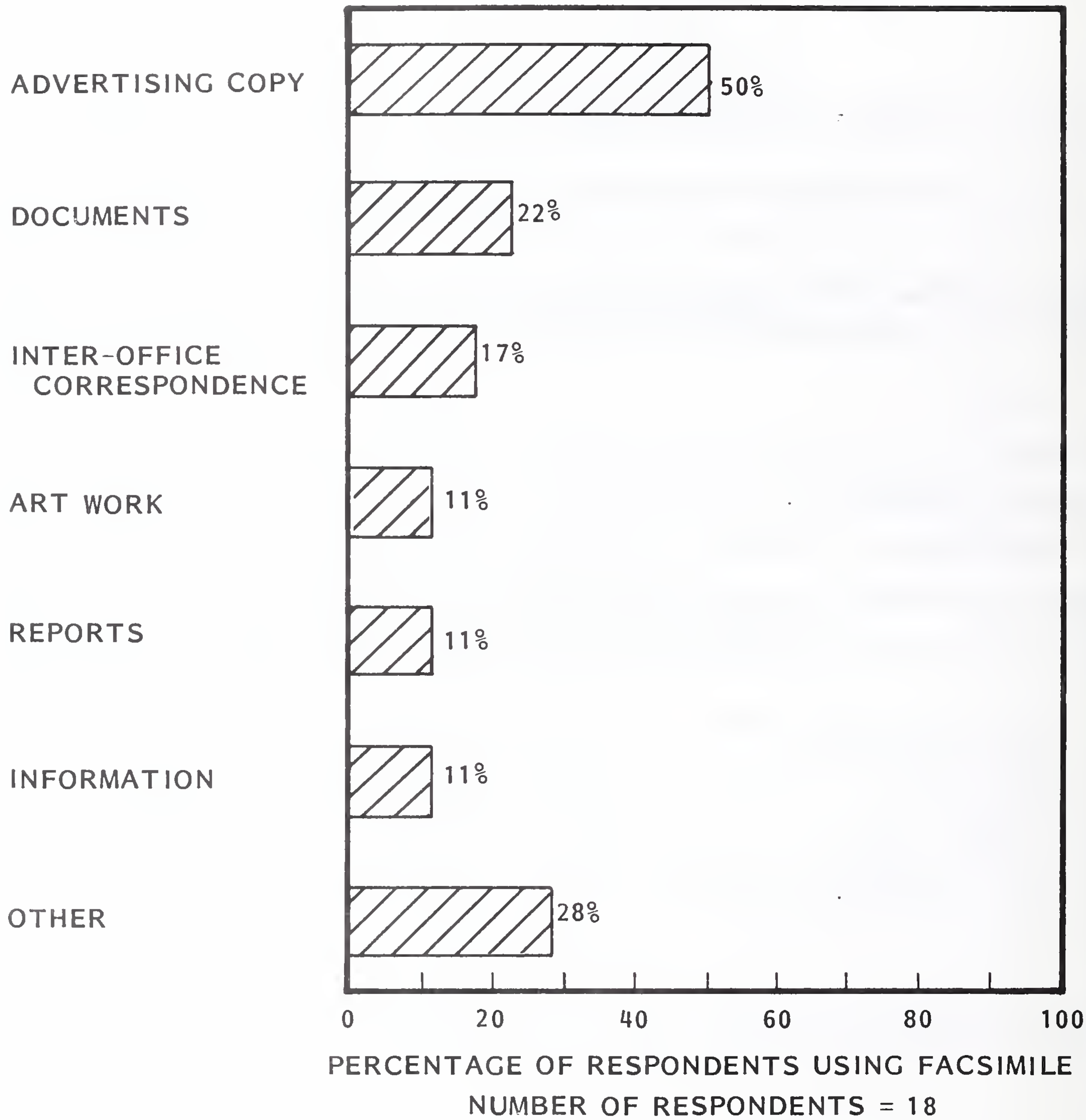
ADVERTISING SECTOR -
COMMUNICATIONS EQUIPMENT AND SERVICES
USED BY RESPONDENTS
(PERCENTAGE OF RESPONDENTS)

TYPE OF EQUIPMENT/SERVICE	INDEPENDENT ESTABLISHMENTS	BRANCHES OF LARGE CORPORATIONS
COMMUNICATIONS EQUIPMENT		
KEYSET	50%	50%
PABX	50	50
INTERCONNECT	30	17
FACSIMILE	40	61
COMMUNICATIONS SERVICES		
WIDE-AREA TELEPHONE SERVICE (WATS)	45%	56%
TELEX/TWX	25	28
LEASED LINES	0	17
NON-TELEPHONE COMPANY SUPPLIED SERVICES	0	0

NUMBER OF RESPONDENTS = 38

EXHIBIT V-125

ADVERTISING SECTOR -
TYPES OF DOCUMENTS TRANSMITTED
VIA FACSIMILE



d. Office Equipment Usage

- This industry again shows itself to be ahead of the pack - now in its use of the latest in office equipment. Over 25% of all respondents use electronic memory typewriters. Most of this activity occurred in the independent organizations and the large majority of it in the largest companies.

- Almost 25% of all respondents have standalone word processing systems. These, however, are mostly in the branches (Exhibit V-126). Also more standalone word processors are found in the medium size branches than in the large ones. In the large establishments, independent or branch,most have electronic typewriters and word processors.

- One respondent at the lower end of the large scale, has ten memory typewriters, three standalone word processors and two shared logic text editors. In addition to his own use, he runs a word processing service primarily for other advertising companies.

- Plain paper copiers dominate the field with usage running from 100 to 500 copies per day. As Exhibit V-126 shows, many companies have both plain and coated paper types.

- Some activity in the copier area will take place during the next two years with the buyers looking for:

  - Output quality.

  - Service.

  - Price.

  Desired qualities in new equipment will be in that order. Few people mentioned speed, reduction, two sided copying, collating or automatic document feed as being important.

EXHIBIT V-126

ADVERTISING SECTOR -
OFFICE EQUIPMENT USED BY RESPONDENTS
(PERCENTAGE OF RESPONDENTS)

TYPE OF EQUIPMENT	INDEPENDENT ESTABLISHMENTS	BRANCHES OF LARGE CORPORATIONS
ELECTRONIC TYPEWRITERS	35%	17%
STANDALONE WORD PROCESSORS	15	33
COATED PAPER COPIERS	35	12
PLAIN PAPER COPIERS	85	94
DUPLICATING EQUIPMENT	0	6
PRINT SHOP	0	0

NUMBER OF RESPONDENTS = 38

4. HEALTH SERVICES - OFFICES OF PHYSICIANS

a. Industry Characteristics

- The Health Services sector includes establishments primarily engaged in furnishing medical, surgical and other health services to people. Associations or groups primarily engaged in providing medical or other health services to members are included, but those which limit their services to the provision of insurance against hospitalization or medical costs are not included. This sector had over 260,000 establishments and employed over four million people in 1976.

- The offices of physicians subsector has 47% of the establishments but only 14% of the employees. These are the establishments of licensed practitioners having an MD degree and engaged in the practice of general or specialized medicine and surgery. Group clinics, in which a group of physicians are associated for the purpose of carrying on their profession, are included. All the respondents in the industry section were groups of three or more physicians working in association with one another. Exhibit V-127 shows the breakdown by size of the various establishments in this sector. It includes one and two physician offices in addition to the larger groups. Based upon these data the following employees/establishments figures were derived:

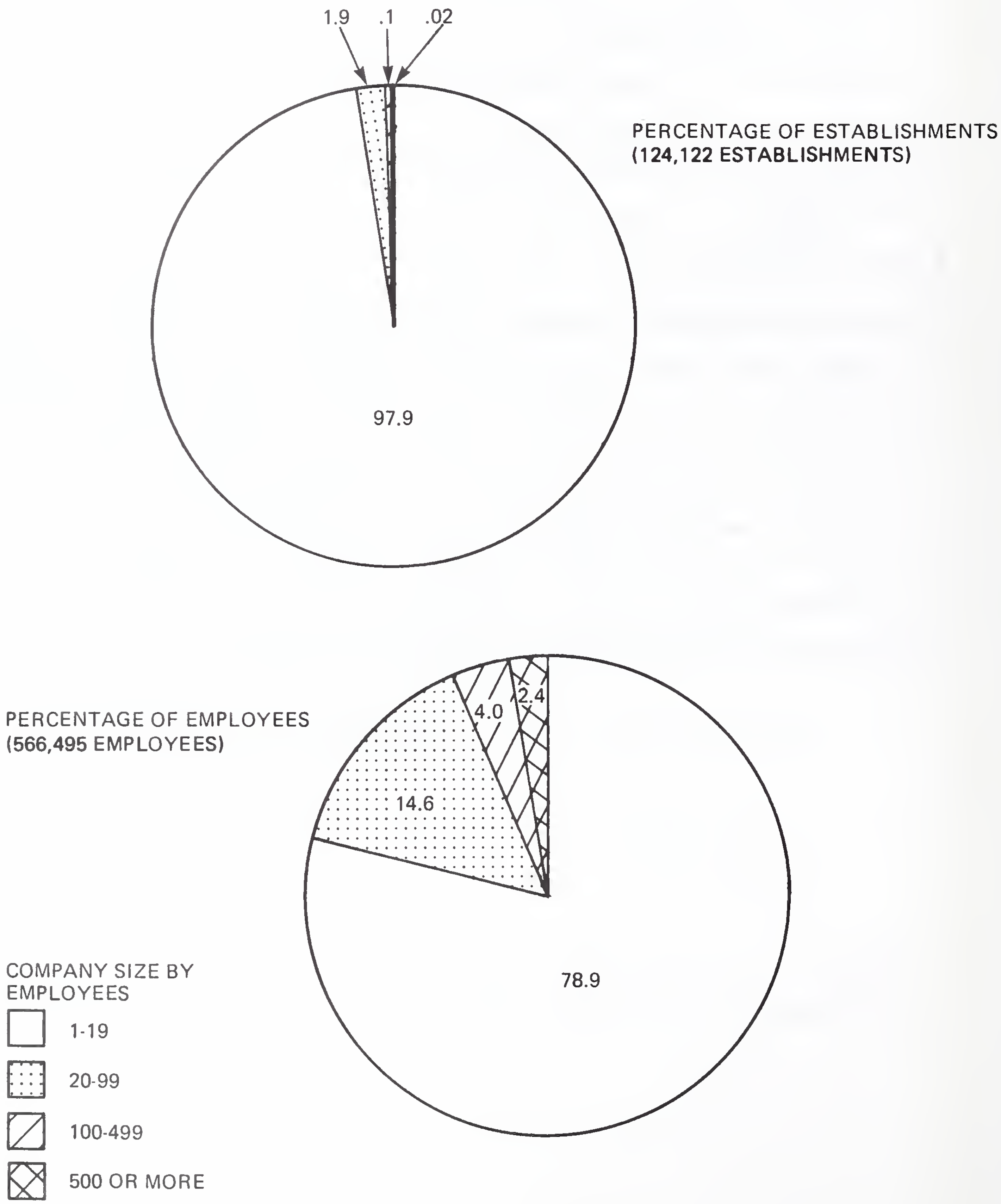
Establishment Size	Employees/Establishment
1-19 Employees	3.7
20-99 Employees	34.6
100-499 Employees	169.3

- Based upon the AMA derived averages of 2.1 support people for each doctor, an average establishment in each size class has:

EXHIBIT V-127

STRUCTURE OF THE OFFICES OF PHYSICIANS SECTOR

(1976 DATA)



Establishment Size	Average Number Of Doctors	Average Number of Support People
1-19 Employees	1.2	2.7
20-99 Employees	11.2	23.4
100-499 Employees	54.6	114.7

- There are over 10,000 medical groups of three or more physicians with over 75,000 practicing physicians. These are the groups that were sampled for this study.

- There are no "branches" in this sector so all figures are for independent establishments.

- The establishment size groups for the data in this sector are based upon the number of MDs in the group rather than the number of employees as follows:

Group Size	Number Of MDs
Small	3-6
Medium	7-19
Large	20 or more

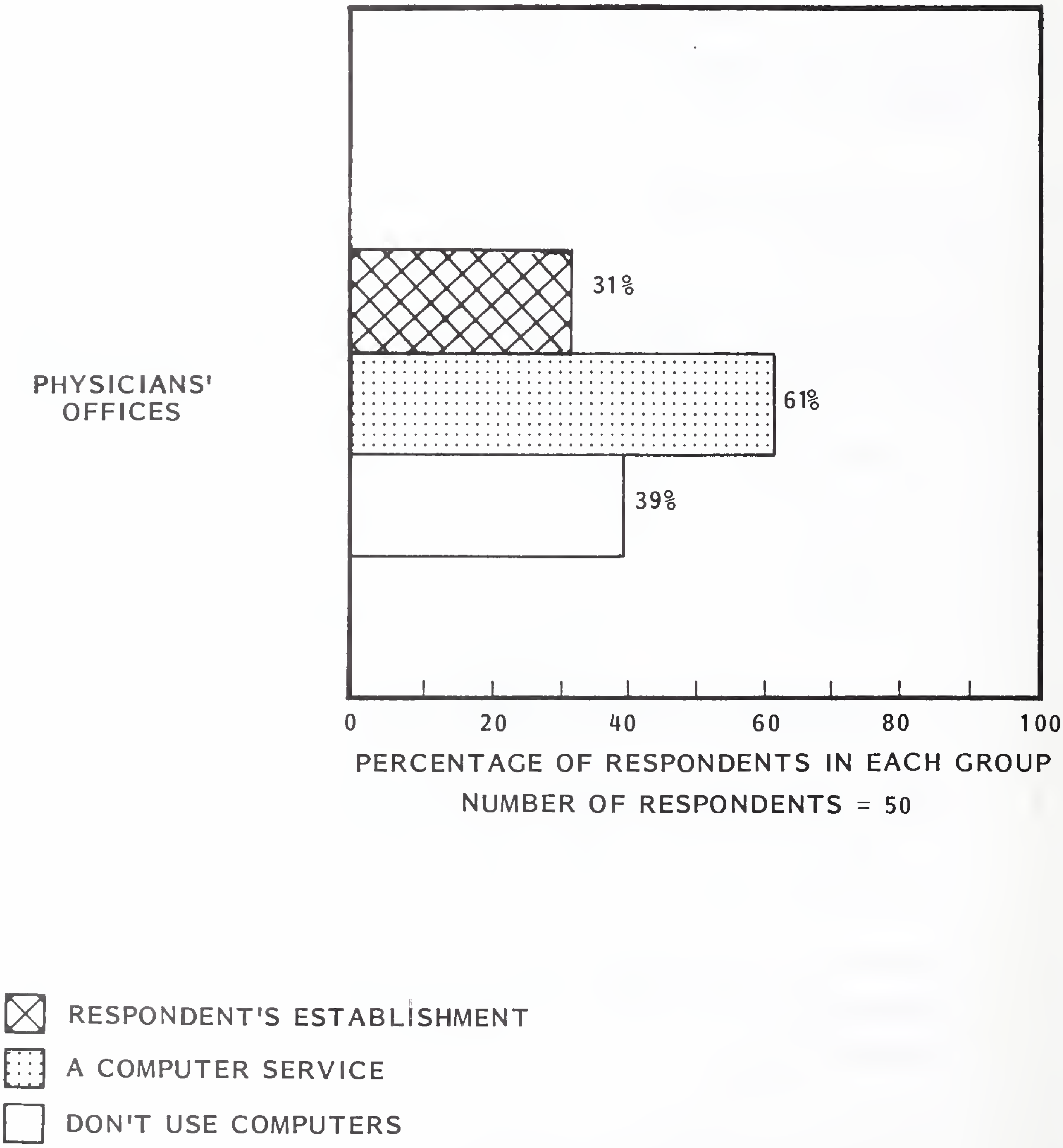
b. Computer Equipment And Services Usage

- Overall, 61% of the respondents are using computers currently. The breakout of computer owners and service users is shown in Exhibit V-128. Several respondents are using both services and their own computers.

- Only 48% of the small groups were using computers, while 100% of the large groups were involved with computers and 67% of the medium groups were automated.

EXHIBIT V-128

OFFICES OF PHYSICIANS SECTOR -
LOCATION OF COMPUTERS OR COMPUTER SERVICES
USED BY RESPONDENTS
(1979)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

- The small groups have considerably more in-house systems than do the large groups (45% to 14%). The large groups required the aid of computers earlier than the smaller groups because of the sheer volume of paperwork involved. At that time, economics dictated the use of computer services. As computer economics changed, the smaller groups began installing systems, but the larger groups kept using the outside service vendors. The large groups that have their own system use them as adjuncts to the services vendor's offerings.

- Currently, about 24% of the small groups, 67% of the medium size groups and 100% of the large groups use a computer service vendor.

- The equipment changes expected by 1984 are interesting. Not only will more establishments be installing their own equipment but more will also be using outside services (Exhibit V-129).

- This is due to the applications that are available from vendors of small systems and from services vendors along with the priorities the group practices have for automating various applications.

- The applications that have been automated are generally the financial and administrative functions as shown in Exhibit V-130. Patient billing and accounts receivable are the most cost effective to automate since they are directly related to paperwork volume and improved cash flow. Other functions are usually added gradually.

- Other administrative applications that have been automated at some establishments but in general have a very low priority are:

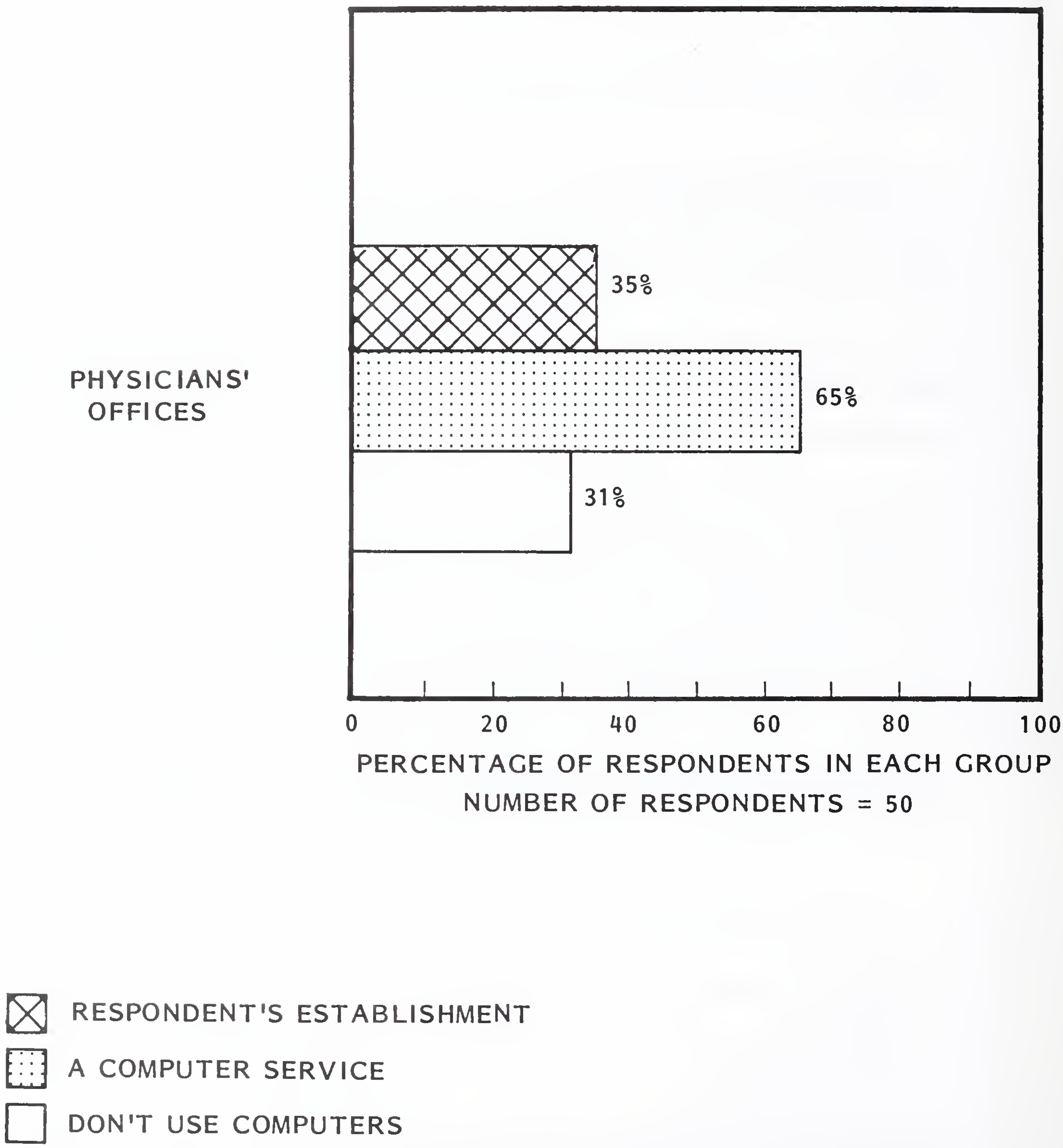
  - Budget administration.

  - Cost accounting.

  - Tax accounting.

EXHIBIT V-129

OFFICES OF PHYSICIANS SECTOR -
LOCATION OF COMPUTERS OR COMPUTER SERVICES
USED BY RESPONDENTS
(1984)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

EXHIBIT V-130

OFFICES OF PHYSICIANS SECTOR - PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS

APPLICATIONS	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
ACCOUNTING AND FINANCE			
PAYROLL	68%	32%	39%
BILLING	39	61	77
ACCOUNTS RECEIVABLE	45	55	71
ACCOUNTS PAYABLE	68	32	39
GENERAL LEDGER	71	29	35
INSURANCE	81	19	26

NUMBER OF RESPONDENTS = 31

- Personnel records.

- Time keeping.

- Dietary records.

- Supplies inventory.

• Several of these are included in a Group Practice Management System.

• No respondent has reported using such an integrated system but several turnkey system houses are approaching it.

• Higher priority applications are in the medical applications area. Few respondents reported using the system in these areas but almost all express interest in them. In this medical applications package are:

  - Registration and scheduling.

    . Patient registration.

    . Patient scheduling.

    . Physician scheduling.

    . Patient recalls ahead.

  - Medical records storage and retrieval.

    . Patient/problems cross index.

  - Laboratory reporting.

  - Computer aided diagnoses.

- This market for computers and services is barely penetrated. INPUT estimates that there is only a 10% penetration into a $145 million market. There is widespread involvement with computers and computer services. This market is ready for solid cost effective demonstrations in many application areas. The groups will buy if their particular priorities can be touched first. The larger groups will be looking towards the medical application areas while the smaller groups will be looking at both medical and the administrative applications in low cost equipment.

c. Communications Equipment

- The majority of respondents (72%) use keyset telephones and are satisfied with their current system (Exhibit V-131). The larger groups have PABXs and a minimal number use WATS lines. Medical practices including groups are generally local in nature and the use of WATS, leased lines, and TELEX/TWX services is expected to be minimal.

- The low usage of interconnect equipment is surprising in an industry that is reasonably cost conscious and aware of new developments, with fairly high telephone users. Thirty-five percent of the respondents expressed interest in private telephone sytems and might be expected to investigate this area soon.

d. Office Equipment Usage

- Every respondent has at least one copier and their usage is quite high, ranging from 750 copies/month to 13,000 copies/month. Plain paper copiers have 60% of the market and coated paper copiers have 40%, as shown in Exhibit V-132.

- Most of the use of copying equipment is for patient bills and insurance forms. As computer processing becomes increasingly common in both of these areas, the load on the existing copiers will decrease and the market for new or additional ones should not be expected to grow at the same rate as in the past in this market niche.

EXHIBIT V-131

OFFICES OF PHYSICIANS SECTOR -
COMMUNICATIONS EQUIPMENT AND SERVICES
USED BY RESPONDENTS

TYPE OF EQUIPMENT/SERVICE	PERCENTAGE OF RESPONDENTS
COMMUNICATIONS EQUIPMENT	
KEYSET	72%
PABX	28
INTERCONNECT	8
FACSIMILE	0
COMMUNICATIONS SERVICES	
WIDE-AREA TELEPHONE SERVICE (WATS)	6%
TELEX/TWX	0
LEASED LINES	0
NON-TELEPHONE COMPANY SUPPLIED SERVICES	0

NUMBER OF RESPONDENTS = 49

EXHIBIT V-132

OFFICES OF PHYSICIANS SECTOR - OFFICE EQUIPMENT USED BY RESPONDENTS

TYPE OF EQUIPMENT	PERCENTAGE OF RESPONDENTS
ELECTRONIC TYPEWRITERS	0
STANDALONE WORD PROCESSORS	4%
COATED PAPER COPIERS	40
PLAIN PAPER COPIERS	60
DUPLICATING EQUIPMENT	0
DICTATION EQUIPMENT	44

NUMBER OF RESPONDENTS = 49

- Other than copiers there is very little usage of other automated office equipment. Dictation equipment is owned by almost half (44%) of the responding groups but many claimed that it is rarely used. Word processing equipment is not used nor are memory typewriters. This is a very limited market for text editing equipment currently but some medical specialties may find some use for the systems.

F. GOVERNMENT GROUP

1. ANALYSIS BY ESTABLISHMENT SIZE

a. Demographics

- By the nature of the statistics collected by various agencies concerning all levels of government and all levels of educational establishments it is very difficult to avoid double counting. Educational institutions are private and public, the descriptive numbers are found both in education oriented tables and in tables describing all levels of government.

- Employee/establishment comparisons cannot be made because the information is not available for the municipal government sector.

- The cleanest set of numbers for both the educational sector and municipal government sector exist in the respective industry sections following this section. They won't be repeated here and should not be combined even though they are reasonably clean and distinct.

- The branches reported on in this section are all departments of large municipal governments. There are no school district branches in this study.

b. Equipment And Services Usage

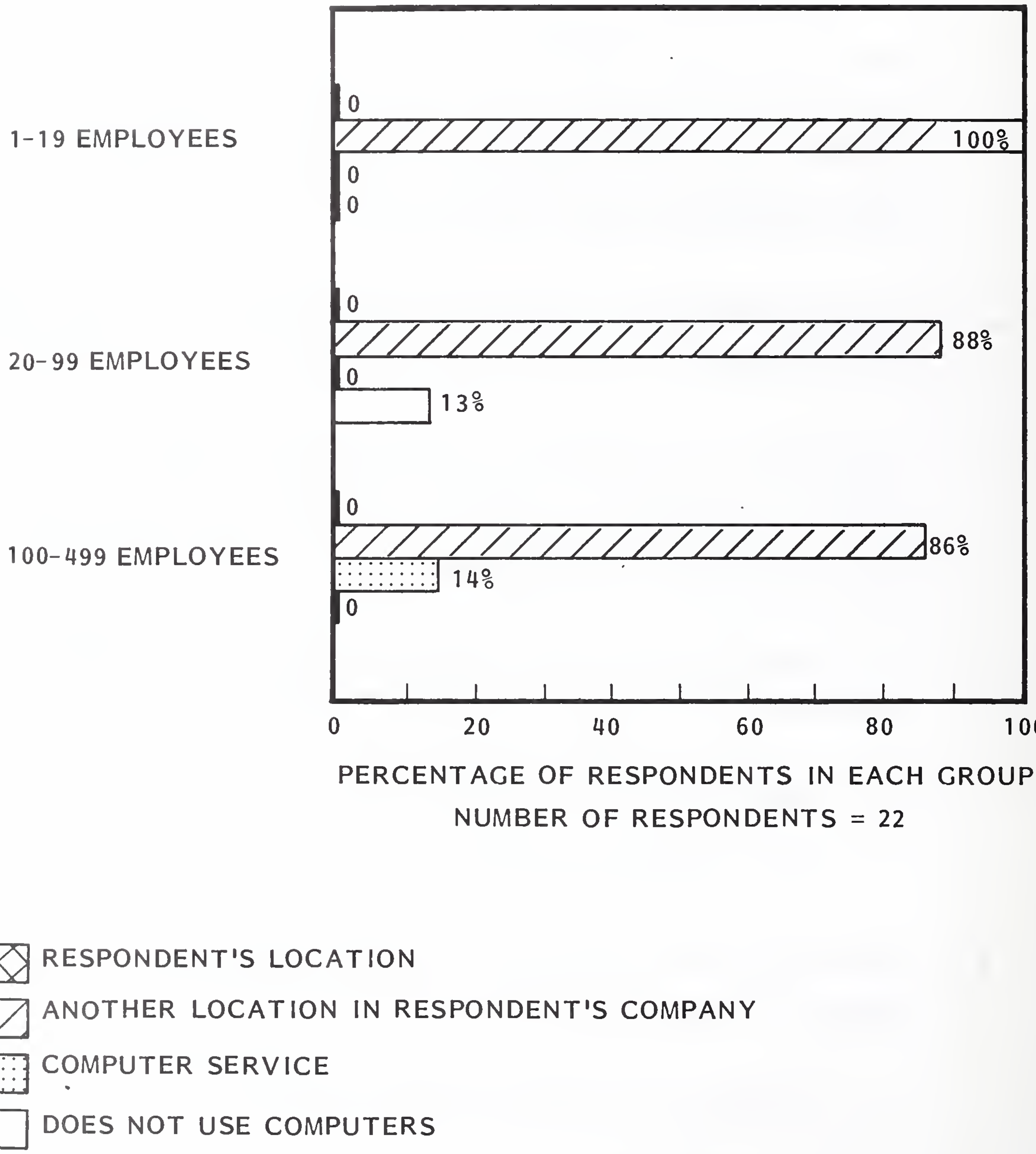
(1) Computers And Services

- The branches use of computers does not vary much, irrespective of the size of the branch (Exhibit V-133).

  - Over 85% of all branches use another municipal departments' system.

EXHIBIT V-133

GOVERNMENT GROUP -
LOCATION OF COMPUTERS OR COMPUTER SERVICES
USED BY RESPONDENTS -
BRANCHES



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

- While 11% of small establishments have their own system, 89% do not use computers at all (Exhibit V-134).

- Computer and service usage is about the same for the medium and large independent establishments - 73% and 79% respectively.

• Fifty-seven percent of the total group uses computer services, either supplied by another organization within the municipal jurisdiction or from an outside computer services vendor.

• These service users tend to have the transactions and output data hand carried between locations when possible or, if this is not possible, use a courier service for most of the data. Some establishments use at least two methods depending upon the time dependency of the data. Physical data delivery is the predominant method for 88% of the service users.

• These small establishments that were using "somebody else's machine," (other than an outside service vendor) felt very negative about such use because they:

  - Didn't choose the service center.

  - Felt they were always last to get served.

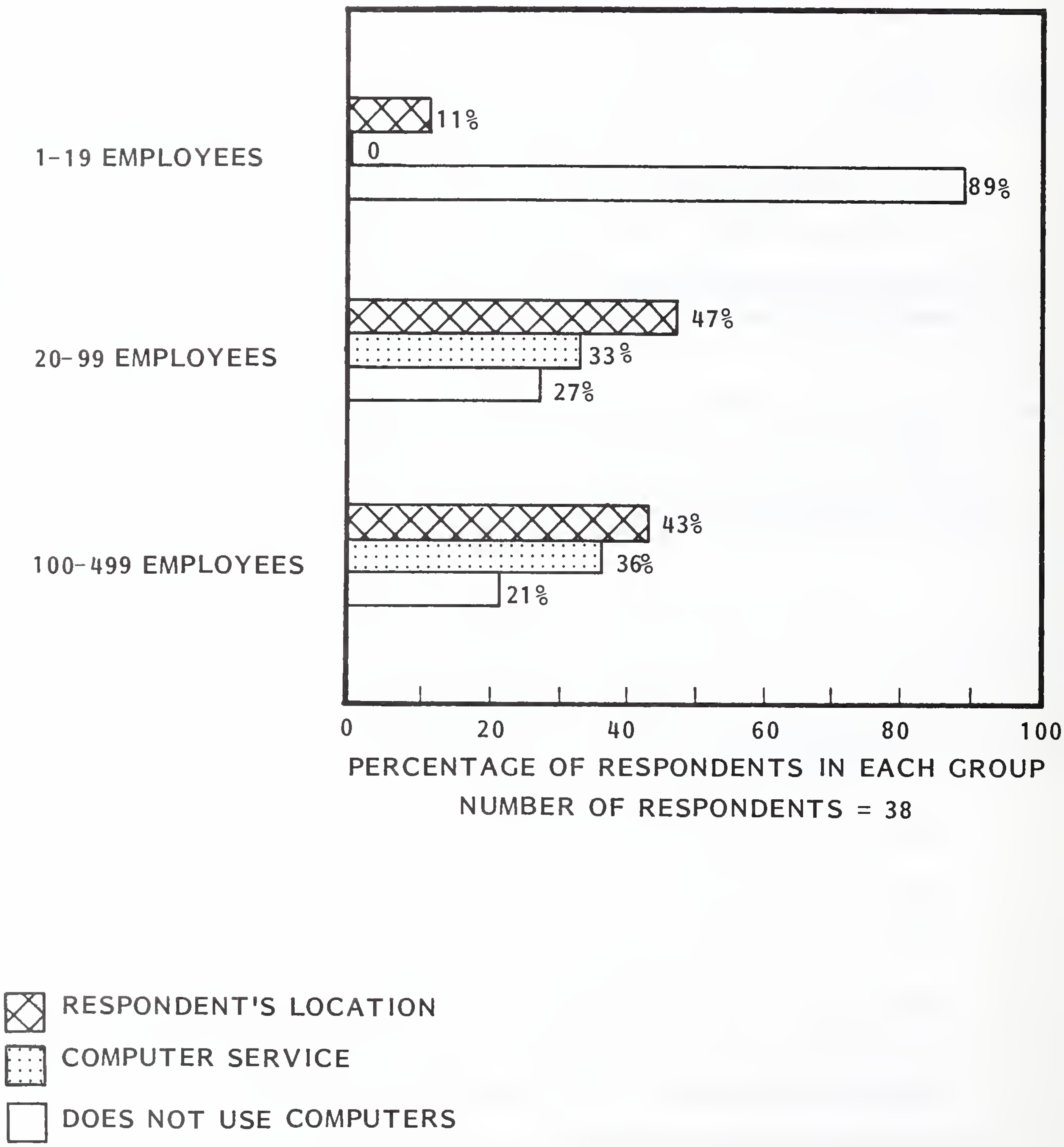
  - Felt they had little choice in reporting formats and timeliness of the data returns.

  They are straining to "get out from under" and will obtain their own system as soon as they can justify it. Any vendor that can help them obtain their own system is more than welcome.

• Since lack of funds is a perennial problem in the education and municipal government marketplace, especially in this "Proposition 13" atmosphere, it should be expected that these establishments will not be able to afford much in the way of programming shops.

EXHIBIT V-134

GOVERNMENT GROUP -
LOCATION OF COMPUTERS OR COMPUTER SERVICES
USED BY RESPONDENTS -
INDEPENDENTS



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

- No medium or large size respondent does his own programming.

- Use of packaged or modified standard programs are used by half or very close to half of each size group and by over 75% of all the independents.

- Software house usage is also very high, especially when programming by the computer service is included.

- Overall, 97% of the programming for this market is done by others.

• Again, as a result of a lack of money, these establishments are very much aware of how to get the most for their money. Leasing and purchasing are the only accepted means of acquiring computer equipment. Actually, most of the respondents' answers were "lease to purchase," meaning they will usually take the purchase option when the lease expires or just own the equipment at the end of an installment purchase contract.

• Actually, most vendors offer conditional sales contracts for extended periods of time (seven years) with a "fiscal funding out" clause to the effect that the sale can be cancelled with some penalty if funds for any given year are not appropriated. These contracts are written to include interest and a premium for the added risk that the vendor or leasing company takes. However, some vendors offer a price reduction (remove the premium) if the total year's bill is paid in one payment at the time when the funds are appropriated.

• Those establishments that use computer services provided by the town or other related organization either obtain the services free of charge or the money is allocated as a fixed sum in the town budget and is not dependent upon the amount of work done for the recipient group. These methods of paying for services constitute the major means of paying by this group. One respondent claims the Federal Government allocates money for the service and had no idea how the allocation was determined.

- None of the methods of paying for services is dependent upon the size of the establishment.

(2) Communications Equipment

- The use of communications equipment or services beyond telephone service is very insignificant. Much of whatever activity there is, is police oriented or used by a very specialized branch of a larger municipality, such as the metero-logical department "faxing" weather maps to the appropriate places. Overall, 5% of the establishments use facsimile equipment and it is all used by large (100-499 employee) establishments.

- Five percent of the total establishments use TELEX/TWX services, again all in the large size group. Three percent of all establishments use leased lines. These are either used for computer purposes or are part of a statewide leased line network.

- WATS service users amount to 13% of the respondents and they are almost all concentrated in the municipal government sector but are equally divided among all establishment sizes.

- Centrex is the most prevalent form of switching system used by these respondents. PABX usage is 37%, virtually all in the municipal government sector. Generally it is part of the municipal government system if a department of the government was the respondent. Half of all PABX users were in the large size establishments, 32% were in the medium size (20-99 employees) establishments, with the remaining 18% in the small size (1-19 employees) establishments.

- Telephone usage is quite high and the use of the Bell operating companies as both a carrier and equipment supplier is also quite high. The use of interconnect equipment is very low, about the 5% level (Exhibit V-135).

EXHIBIT V-135

GOVERNMENT GROUP - SOURCES OF TELEPHONE EQUIPMENT - INDEPENDENTS

SOURCES OF TELEPHONE EQUIPMENT	PERCENTAGE OF INDEPENDENT RESPONDENTS
BELL OPERATING COMPANIES	74%
OTHER TELEPHONE SERVICE COMPANIES	21
COMMUNICATIONS EQUIPMENT SUPPLIERS NOT SELLING CARRIER SERVICE	5

NUMBER OF RESPONDENTS = 38

(3) Office Equipment Usage

- Only 83% of the establishments have copiers. This increases as establishment size increases. Those 17% that do not have copiers either do not need them or they use the centralized duplicating shop or town print shop for their copies. Carbon paper is used for file copies of correspondence.

- Eighty-four percent of the copiers installed are plain paper copiers and 16% are coated paper systems.

- Exhibit V-136 shows quality to be the most important desired characteristic of a copier needed by the respondents. None of the other factors came even close to the percentage reached by "quality." The copying load is not very heavy - the most a single machine is used for is 1,500 copies/day - so speed did not receive a high percentage of responses. If big quantities are needed, most schools and municipalities have centralized printing facilities.

- Usage of other office equipment is low:

  - Seven percent use word processing equipment.

  - Ten percent use memory typewriters.

  All of this usage is by the medium and small size groups with a slight bias towards the larger size establishments within those groups.

- Applications of text editing equipment are:

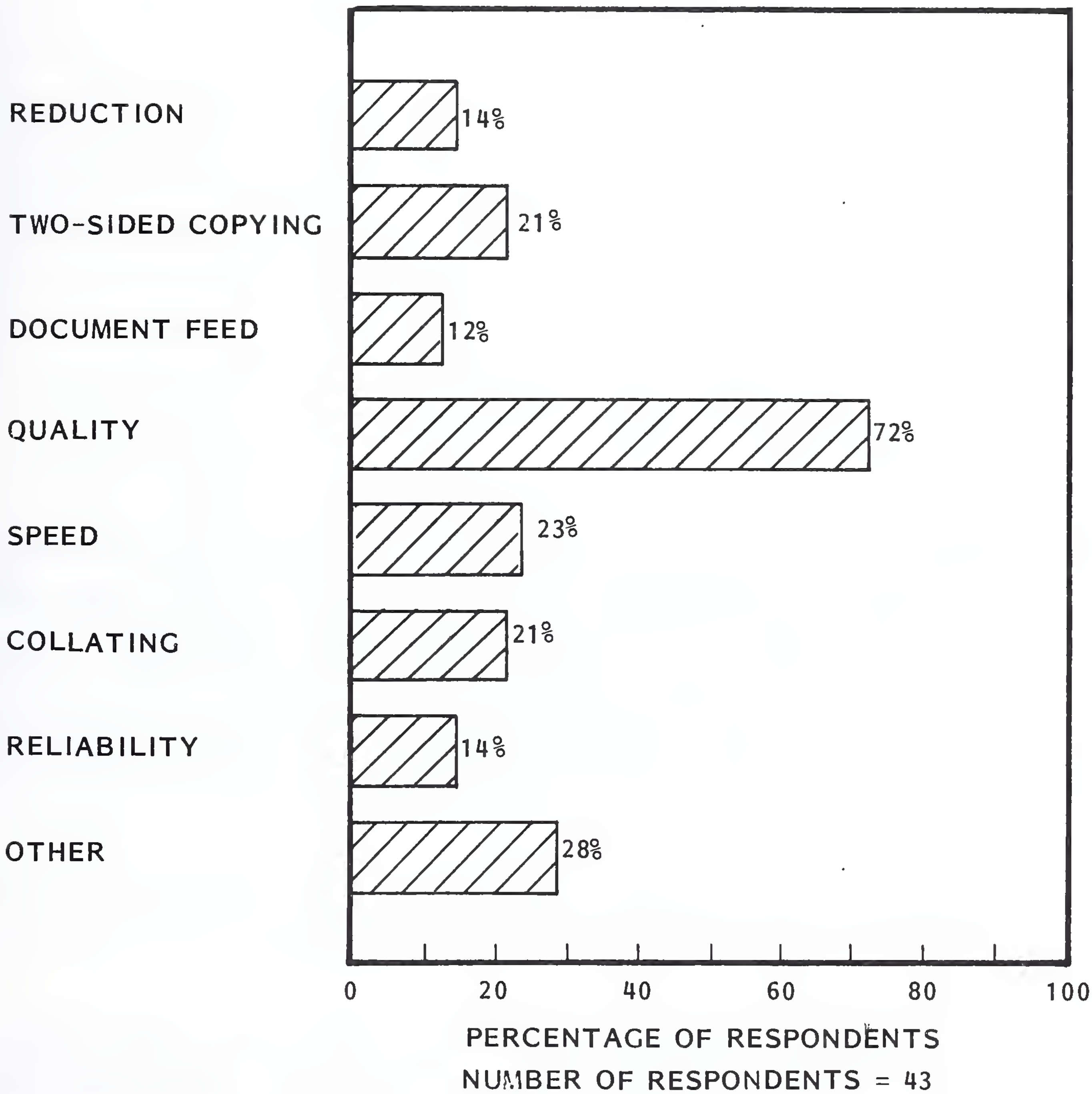
  - Minutes of meetings.

  - Utilities information.

  - Cost estimate.

EXHIBIT V-136

GOVERNMENT GROUP -
COPIER FEATURES DESIRED



- The multitude of forms.

- Newsletters.

- Activities lists.

- Correspondence relative to personnel ads.

- General correspondence, form letters, mailings.

• One possible use of word processing equipment that was suggested by several respondents is in the municipal court system. Perhaps the larger cities' courts systems are using word processing equipment, but none was found during the course of this study in the smaller municipalities, even though several word processing systems were found.

c. Needs And Plans For Improvement

(1) EDP

• Seventeen percent of the respondents report some expansion activity is expected within the next two years. This activity is split among adding applications, expanding the system, getting a system and transferring things to a computer service vendor. Of those who have a system currently, about half are not planning any changes at all. Several respondents report austerity programs are in progress and that means no equipment will be added to the existing complement.

• No specific applications were mentioned as having a high priority and much of the activity was on an "if something else occurs" basis.

• The independent respondents rated vendor support as the most important factor in choosing a computer. Vendor reputation rated second and available software a very close third s shown in Exhibit V-137. These responses indicate

EXHIBIT V-137

GOVERNMENT GROUP -
IMPORTANCE OF FACTORS IN CHOOSING COMPUTERS
INDEPENDENTS

FACTORS	RATING
SUPPORT	2.7
AVAILABLE SOFTWARE	2.4
DELIVERY SCHEDULE	2.2
VENDOR REPUTATION	2.5
AVAILABLE HARDWARE	1.9
COMPATIBILITY WITH LARGER SYSTEMS	2.2

RATINGS: VERY IMPORTANT = 3
SOMEWHAT IMPORTANT = 2
SLIGHTLY IMPORTANT = 1
UNIMPORTANT = 0

a high degree of knowledge with respect to the heart of a strong in-house computer system.

(2) Communications

- The major reported activity is the increase in police and/or town radio communications equipment.

- Telephone system expansion is planned by 5% of the respondents and an additiional 5% will be evaluating the necessity to switch to modern systems. This includes a computerized dispatching system for the police.

- All of this activity is planned in the municipal sector, none in the education sector. This planned activity doesn't vary with establishment size to any considerable degree except that the larger establishments have more funds and are more skillful in obtaining Federal or State grants for special projects, especially in the areas of public health and safety.

(3) Office

- The small and medium size establishments in the government sector will be looking at microfilm equipment to aid with their information storage and retrieval needs.

- One large branch establishment in government needs help in filing 250,000 licenses each year.

- Thirteen percent of the medium size establishments are going to be looking for new copiers during the next two years and most of this activity will be in the education sector.

- Word processing equipment will be requested in 25% of the large size establishments, but many feel negatively about it being approved.

- In general, most of the equipment acquisition activity being planned during the next two years is in the office area and most of the planning is being done by the government sector.

d. Budgeting

- Since school and town budgets are public information and frequently subject to detailed scrutiny by the adverse factions within a district or municipality, expensive equipment or services, especially difficult to explain items such as computers, are usually separate line items in the budget. This shows up in Exhibit V-138 as "handle on an individual basis."

- By law most public entities must buy by the lowest bid provided the specifications have been fully met.

- Selling expensive equipment or services to this market can be a long drawn out process and, more than in most sales situations, needs an "inside" sales person on your side.

2. EDUCATIONAL SERVICES - SCHOOL DISTRICTS

a. Industry Characteristics

- Educational services includes establishments furnishing formal academic or technical courses, correspondence schools, commercial and trade schools, and libraries. Establishments that primarily provide job training, barber schools, and beauty parlor instruction schools are not included. There are over 135,000 establishments employing almost eight million people in the total educational services group. This study will concentrate on the local school district sector, which has over 85,000 establishments employing over 3,500,000 employees (Exhibit V-139).

EXHIBIT V-138

GOVERNMENT GROUP - BASIS FOR BUDGETING FOR INFORMATION HANDLING EQUIPMENT AND SERVICES - INDEPENDENTS

BUDGETING BASIS	PERCENTAGE OF INDEPENDENT ESTABLISHMENT RESPONDENTS
PERCENT OF REVENUE	32%
LAST YEARS'S CONSUMABLE COST	13%
HANDLE ON AN INDIVIDUAL BASIS	39%
OTHER	16%

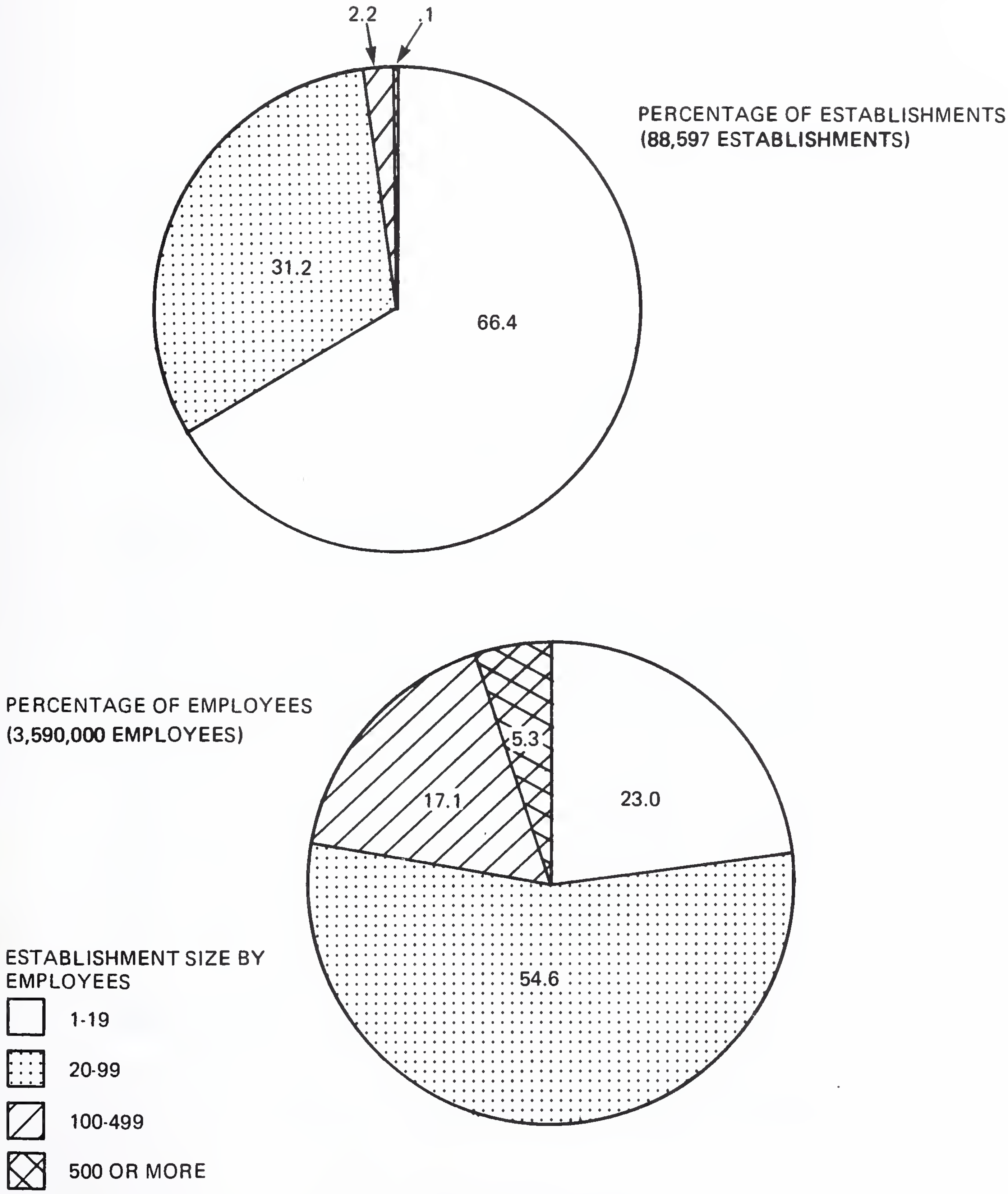
NUMBER OF RESPONDENTS = 38

NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE METHODS

EXHIBIT V-139

STRUCTURE OF THE SCHOOL DISTRICT SECTOR

(1976 DATA)



- Local school districts include, generally, grades kindergarten through twelfth (elementary and secondary schools) including denominational and sectarian. The employees are distributed across district sizes as follows:

Establishment Size (Employees)	Average Employees/ District
1-19	14.0
20-99	70.7
100-499	315.0

These averages are considerably higher than the national averages because the schools are very labor intensive and productivity is very difficult to increase due to established pupil/teacher ratios.

- The enrollment in public schools is about 47,582,000 students, and this is a better measure of buying power than employee size. The school districts are distributed by enrollments as follows:

Size	Number of Districts	Enrollment (1,000)
25,000 or More Pupils	209	13,469
12,000 to 24,999 Pupils	414	6,796
6,000 to 11,999 Pupils	1,033	8,540
3,000 to 5,999 Pupils	1,892	7,873
1,200 to 2,999 Pupils	3,658	7,118
300 to 1,199 Pupils	4,936	3,297
50 to 299 Pupils	2,785	465
1 to 49 Pupils	1,313	25
0 Pupils (Non-Operating)	308	-
TOTAL	16,548	47,582

- The total revenue for the 16,548 school districts is $70.8 billion dollars, of which more than 50% is for teacher's salaries. The total revenue is:

  - $1,488 per pupil.

  - $19,721 per employee.

  - $4,278, 462 per school district.

  Very little of these funds are discretionary, which is why these establishments look for special funding or donations for special projects such as computers for pupils.

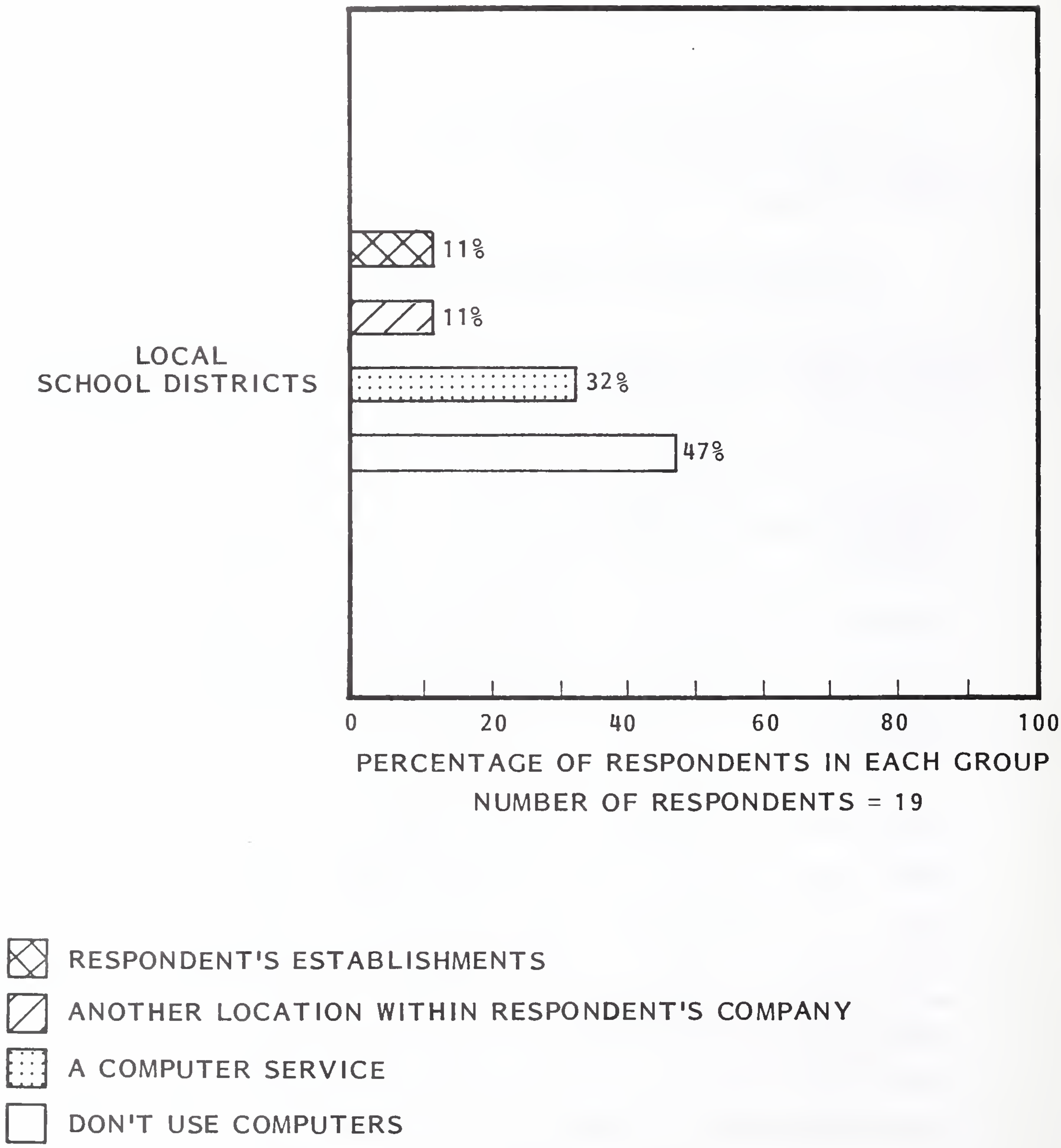
b. Computer Equipment and Services Usage

- School districts are peculiar entities when they interface with the profit making world. They approach this world hat-in-hand. This guise is supported by the State and Federal Government systems by giving tax deductions for industries donating computer or computer services to schools. University computer centers which are non-profit and keep expenses to a minimum by employing low paid graduate students, sell or donate computer and consulting services to school districts in competition with profit making service vendors. The university gets its income from the district so other funds will be freed up for research or if the services are donated, its federal appropriations might be increased.

- While 11% of the respondent districts had their own system, another 11% used another system within the district (Exhibit V-140). This, in most industries, is typical of branches using the home office system. In the schools' case, it is the town's computer that is used. While almost 50% do not use computers, 32% use an outside service vendor. Half of these service centers are non-profit making groups funded by the state with federal monies. One of the other service centers used is in a profit making company that is not in the service bureau business, but it is suspected that this is an accommodation to the local

EXHIBIT V-140

SCHOOL DISTRICT SECTOR -
LOCATION OF COMPUTERS OR COMPUTER SERVICES
USED BY RESPONDENTS
(1979)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

school district by a very large taxpayer as part of a community relations program.

- The in-house computer exists only in the larger districts (100-499 employees). The few districts in the smallest group that use computers at all are using the town's computer.

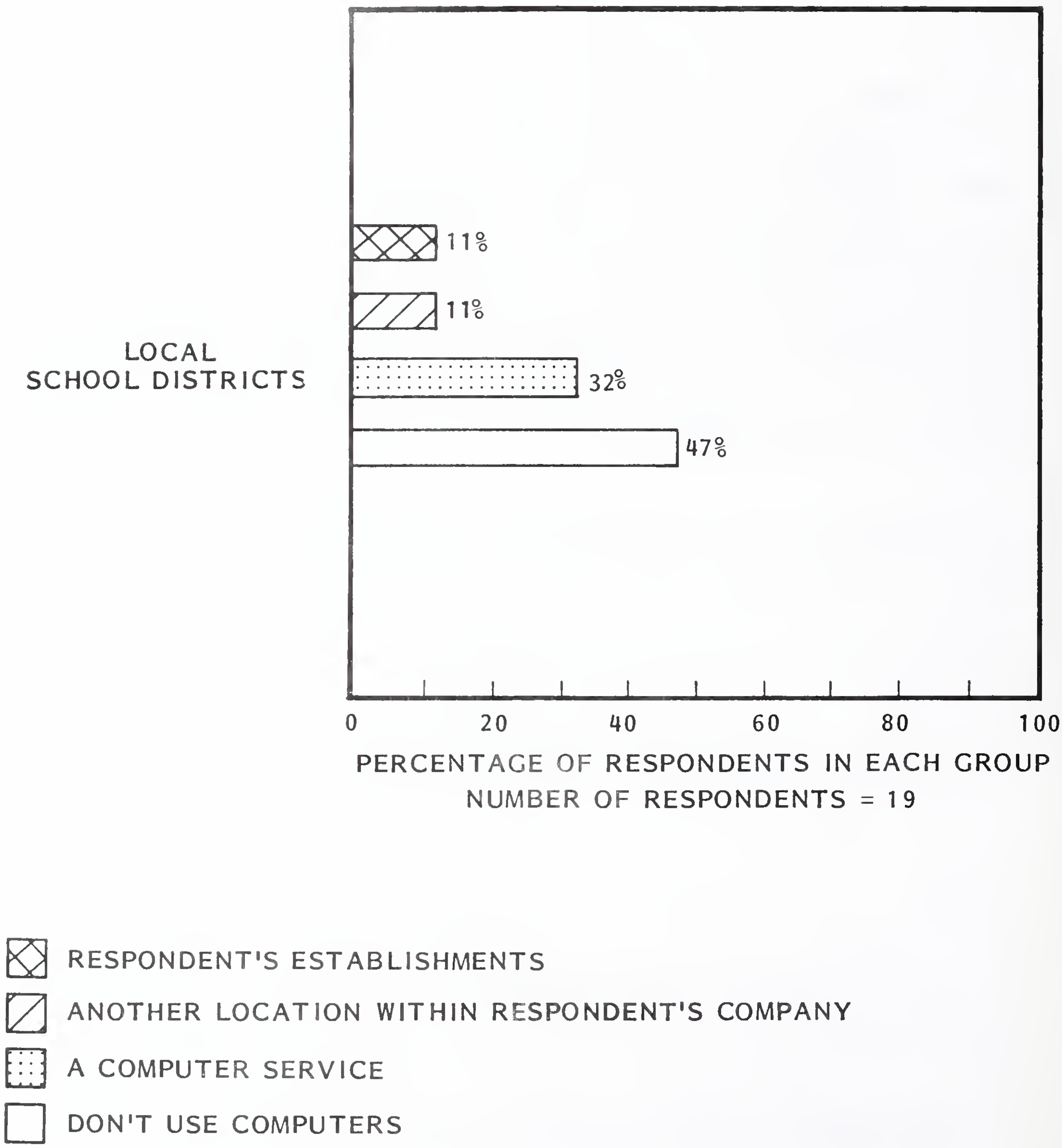
- The applications are heavily oriented towards the business office functions. There is some automation of student records, grading, attendance reporting, class scheduling, and bus routing. These educationally specific applications are frequently done by the non-profit service centers. This is not true in all cases. Transportation routing and classroom scheduling involve large matrices that typical school districts or town computers cannot handle. These are frequently performed using a large university or private vendor's system. The average private service vendor that provides services specifically to municipal entities doesn't have a system to handle these problems for a reasonably large district, so it is the very large services that perform this service for the schools once or twice a year.

- The respondents feel nothing will change by 1984. No new computers will be bought or used (Exhibit V-141), and no new applications will be added to the list nor will many more districts add standard applications to their repertoire (Exhibit V-142).

- For the past 15 years, various Federal Government programs have attempted to give money to school districts using computers in the instruction process: Computer Based Instruction. In its various forms, it has been tried by many districts in all parts of the country but usually when Federal funds are withdrawn, the project dies for lack of money. Sometimes, a school district has a vociferous advocate of such programs, and money is raised from the government or private sources and the system is installed. When the advocate leaves the district, the project dies for lack of interest. This interest on the part of the Federal education interests has spawned a number of private companies selling for profit the systems developed under Federal funds. These

EXHIBIT V-141

SCHOOL DISTRICT SECTOR-
LOCATION OF COMPUTERS OR COMPUTER SERVICES
USED BY RESPONDENTS
(1984)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

EXHIBIT V-142

SCHOOL DISTRICT SECTOR - PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS

APPLICATIONS	ALL ESTABLISHMENTS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
ACCOUNTING & FINANCE			
PAYROLL	47%	47%	53%
BILLING	53	42	42
ACCOUNTS RECEIVABLE	47	47	47
ACCOUNTS PAYABLE	53	37	37
GENERAL LEDGER	37	21	21
PURCHASING			
INVENTORY CONTROL	21	16	16
RECEIVING	11	11	11
INDUSTRY SPECIFIC			
STUDENT RECORDS	32	11	11
GRADING	26	5	11
ATTENDANCE REPORTING	5	11	11
SCHEDULING	5	5	5
OTHER	0	11	11

NUMBER OF RESPONDENTS = 19

are meeting with moderate success, but systems still must be funded either directly or indirectly by the Federal Government. Very few are bought with local tax funds.

- Another area of interest between the local schools and computer applications is in teaching the understanding and use of computers. In a sense, it is vocational education. Schools teach logic, programming, business applications, data entry, text editing, etc. These systems are difficult to ferret out when talking to the school administration unless the system is used for both administrative and academic functions. This is becoming less and less likely with the advent of inexpensive micro systems available in the local computer store or by mail order.

- Local schools are a prime market for many computer stores (see INPUT SES Report "Vendor Stores," August 1979). As these small systems proliferate in the schools, the battles between the administration and faculty will lessen and each will play in his own pen.

- Summing up:

  - Administrative computer use appears to be growing very slowly in the smaller districts (under 500 employees).

  - Computer based instructional systems, while still being sold, are barely creeping along.

  - The teaching of and about computers, but not by computers, will be the fastest growing segment of the market, and it shouldn't be affected by a recession since it can be justified on a vocational basis, and there is a big demand for all levels of computer personnel.

c. Communications Equipment

- As they said about Kansas City once, "they've gone about as far as they can go" - keysets are utilized in 95% of the districts (Exhibit V-143). In general, all respondents are satisfied with their equipment but not with the service. The only growth reported is the wish by one small district to get off the party line system and go to a private line.

- The general attitude is "we have no choice." But in fact there is a choice, and while small schools are not prime markets because of their funding mechanisms and because of their lack of geographic concentration, they can be sold economically. The U.S. Constitution leaves certain powers to the states and education is one of them. The states generally have left this role to local governments. However, more and more funding is through the state first and then it filters down to each municipality. The state, while not having control, can and will do the local selling. It is the vendor's job to:

  - Locate a sympathetic, reasonably politically well-located individual in the state's department of education.

  - Convince this person that money can be saved without any loss of employees, using specific equipment and/or services at certain well defined types of school districts.

- Then with the vendor's help this individual will proselytize for you. Each separate bid will have to be competitive, but there may be nobody else bidding. In some cases, states certify equipment and schools can only buy from that list. In other cases, the state stocks and sells items to the districts, perhaps only one vendor's equipment might be available for awhile.

d. Office Equipment Usage

- The school mimeograph machine is still around. It is also the most economical copying system to serve the school's needs, and while it may not be the easiest

EXHIBIT V-143

SCHOOL DISTRICT SECTOR -
COMMUNICATIONS EQUIPMENT AND SERVICES
USED BY RESPONDENTS
(PERCENTAGE OF RESPONDENTS)

TYPE OF EQUIPMENT/SERVICE	SCHOOL DISTRICTS
COMMUNICATIONS EQUIPMENT	
KEYSET	95%
PABX	5
INTERCONNECT	5
FACSIMILE	0
COMMUNICATIONS SERVICES	
WIDE-AREA TELEPHONE SERVICE (WATS)	5
TELEX/TWX	0
LEASED LINES	5
NON-TELEPHONE COMPANY SUPPLIED SERVICES	0

NUMBER OF RESPONDENTS = 19

to use, after so many years of use all of those kinds of problems are solved (Exhibit V-144).

- While all districts have typewriters and most have reasonably up-to-date equipment, the typing load varies from one page/day on a "very old machine" to 500 pages/day. Several districts have purchased memory typewriters.

- Most respondents, while seeing the uses for word processing equipment, felt there was no way money would be found for it. Of course, it could always be used to fill out forms for Federal grants to get money to buy the system based on its ability to fill out forms for Federal grants.

- Most respondents felt that output quality was the most important criterion in selecting a copier. The respondents who felt differently were those that used duplicators, and they wanted collation capabilities primarily. Other features deemed important were:

  - Automatic shutoff if paper jams.

  - Multiple paper sizes

  - Dependability.

  Nobody mentioned cost.

3. PUBLIC ADMINISTRATION - MUNICIPAL GOVERNMENT

a. Industry Characteristics

- The local government group provides administrative, health, safety, and education services to their populations. In 1977 the subsectors of local government were:

EXHIBIT V-144

SCHOOL DISTRICT SECTOR -
OFFICE EQUIPMENT USED BY RESPONDENTS
(PERCENTAGE OF RESPONDENTS)

TYPE OF EQUIPMENT	SCHOOL DISTRICTS
ELECTRONIC TYPEWRITERS	16%
STANDALONE WORD PROCESSORS	0
COATED PAPER COPIERS	37
PLAIN PAPER COPIERS	68
DUPLICATING EQUIPMENT	21

NUMBER OF RESPONDENTS =19

Type	Number of Establishments
County	3,042
Municipalities	18,862
Townships	16,822
Special Districts	25,962
School Districts	15,174
TOTAL	79,862

- These governmental entities employed 7,596,000 people for a per entity average of 95 employees. The range for the employees per entity is from 13 at the special districts to 507 at the county level.

- This study will concentrate on the 18,862 municipal governments that employ 2,141,000 people giving an average employment per municipal government of 113.5 people. The 1976 revenue for these municipalities was $66.9 billion or $31,226 per employee.

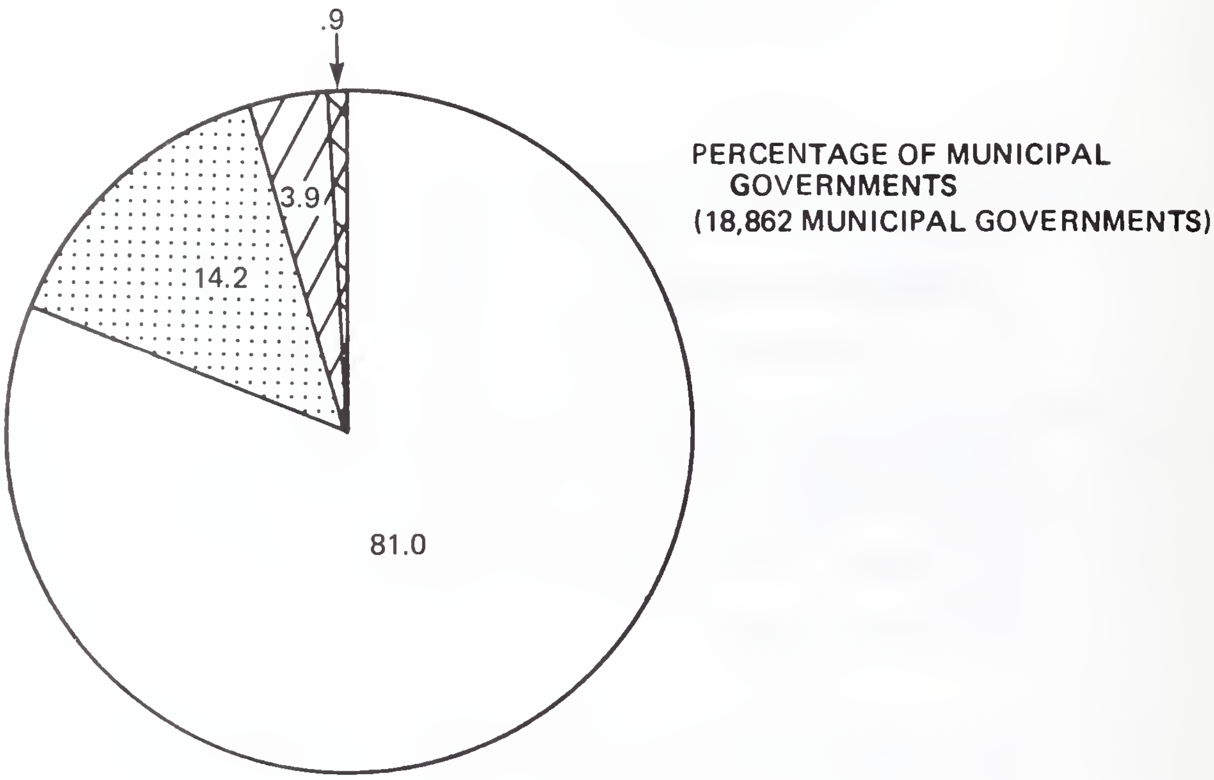
- The breakdown of the municipal governments by employee size is estimated and is based upon one employee for every 250 people (Exhibit V-145). The data was not available nor was it consistently derivable to determine the number of employees by the employee size groupings used in this study.

- In order to achieve the branch versus independent comparison, small municipal governments were interviewed for the independent category and departments within larger municipal governments were queried for the branch portion of the study.

EXHIBIT V-145

STRUCTURE OF THE MUNICIPAL GOVERNMENT SECTOR

(1976 DATA)



PERCENTAGE OF EMPLOYEES
(2,141,000 EMPLOYEES)

COMPANY SIZE BY EMPLOYEES

- 1-19
- 20-99
- 100-499
- 500 OR MORE

b. Computer Equipment and Services Usage

- Most respondents feel that the approach they are taking currently is the most cost-effective way of solving their problem and will be reluctant to change, but will be increasing their facilities or use of services during the next two years.

- The branches overwhelmingly (91%) use the services of other city departments (Exhibit V-146) to handle their data processing workload. This is usually a budgeted expense. Communication between the user and service center is in person. In some cases, departments hand carry data to another department who then gets the data to the service center, but the originating department has no idea how, nor do they really care. Some of these departments plan on getting their own system within five years, but note the only departments planning on their own system are those that already use a system (Exhibit V-147). These departments are in the medium and large size groups.

- Several departments complained about the equipment and poor service, but blamed it on the necessity to accept the lowest bid. About an equal number thought their service was great.

- The automation level at the independent municipal governments is about 10% less than at the branches, but about half of the governments have their own systems and about one-quarter use a service vendor. This varies dramatically with the size of the government but not directly.

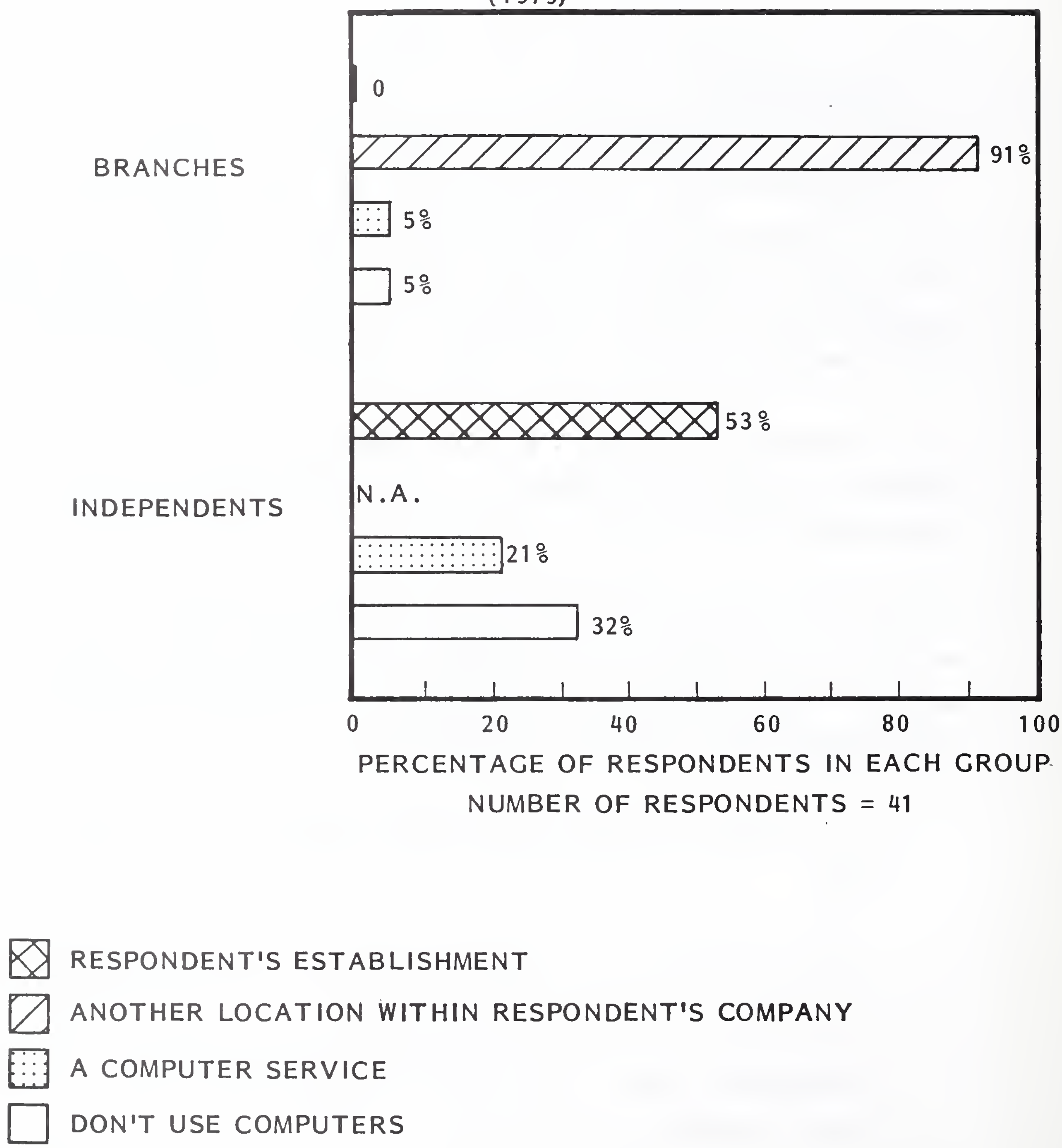
  - No municipal government of under 20 employees uses computers in any way.

  - Just less than 20% of the other two groups are involved with computers.

  - Only the larger group (100-499 employees) plans to increase the level of automation by 1984. All of those not using computers will be using them in five years.

EXHIBIT V-146

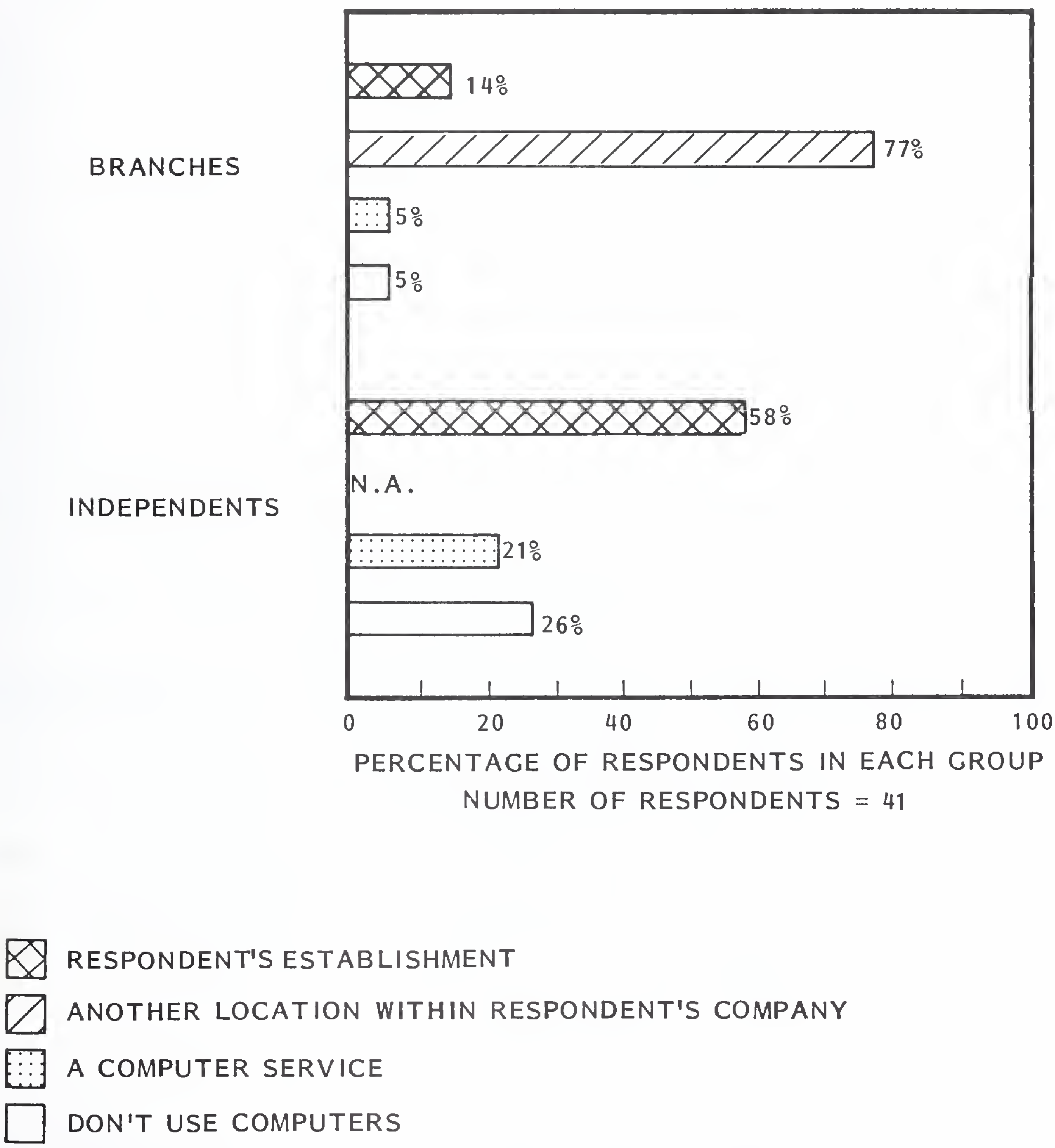
MUNICIPAL GOVERNMENT SECTOR -
LOCATION OF COMPUTERS OR COMPUTER SERVICES
USED BY RESPONDENTS
(1979)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

EXHIBIT V-147

MUNICIPAL GOVERNMENT SECTOR -
LOCATION OF COMPUTERS OR COMPUTER SERVICES
USED BY RESPONDENTS
(1984)



NOTE: TOTALS MAY BE GREATER THAN 100% DUE TO USE OF MULTIPLE TECHNIQUES

- Most independent and branches used computers for the same business applications (Exhibits V-148 and V-149). Payroll and billing are the most highly automated. Billing includes property taxes, water bills, and other utility bills. Accounts receivable, accounts payable, and general ledger are the main areas the independents will be automating during the next five years. The branches expressed interest in automating applications that were peculiar to their department, but felt it could not be justified in the near future. Some of the applications in various departments that have already been automated are:

  - Publications accounting.

  - Loan and advertising programs.

  - Dispatching.

  - Utility cost and rate structure analysis.

  - Bibliographic and circulation information.

  - Dog licensing.

  - Inspection of boilers, plants, and buildings.

- The primary need expressed by most respondents was for a cost effective means of filing and retrieving papers, documents, bills, and all of the other necessary forms for carrying out their functions. Some are considering microforms, some are considering data processing, and some know that taxpayers won't spend money to do filing. In addition, there is the privacy issue. It might be cost justifiable if all municipal records were pooled and placed in one I/R system, but the current popular trend is against data banks of this comprehensiveness.

EXHIBIT V-148

MUNICIPAL GOVERNMENT SECTOR -
PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS -
BRANCHES

APPLICATIONS	BRANCHES OF LARGE MUNICIPAL GOVERNMENTS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
ACCOUNTING & FINANCE			
PAYROLL	9%	91%	91%
BILLING	27	73	73
ACCOUNTS RECEIVABLE	27	73	77
ACCOUNTS PAYABLE	27	73	77
GENERAL LEDGER	27	73	77
DEPARTMENT RELATED	50	14	14

NUMBER OF RESPONDENTS = 22

EXHIBIT V-149

MUNICIPAL GOVERNMENT SECTOR - PERCENTAGE OF RESPONDENTS PERFORMING APPLICATIONS - INDEPENDENTS

APPLICATIONS	INDEPENDENT MUNICIPAL GOVERNMENTS		
	PERFORMED MANUALLY	AUTOMATED IN 1979	AUTOMATED BY 1984
ACCOUNTING & FINANCE			
PAYROLL	53%	47%	47%
BILLING	32	68	68
ACCOUNTS RECEIVABLE	58	42	47
ACCOUNTS PAYABLE	58	42	47
GENERAL LEDGER	68	32	37
BUDGETING	68	32	32

NUMBER OF RESPONDENTS = 19

c. Communications Equipment

- The branches are generally part of a much larger telephone communications system and, therefore, report much higher employment of PABXs than do the independent municipal governments (Exhibit V-150). The branches also feel like branches. They are part of the city contract with the telephone company and even though they feel an upgrading of equipment is necessary, they must abide by what the city does.

- The independents are either satisfied with their existing system, whether old or new, or they are actively looking into new equipment. This activity is only on the part of the larger entities. The medium size group that had problems have just gotten new equipment or it is currently being installed.

- Facsimile equipment is used for weather maps and checks.

- The WATS lines are a mixture of "in" WATS and "out" WATS. Fifty percent of the branch and independent WATS lines are inboard, and are generally used by police departments.

- The communications area is an active one. There seems to be unrest at the branch level even though they feel powerless to do something about it. Assuming other branches feel similarly, then the vendors must approach municipal governments through political channels and help the departments justify the change on a total municipal basis.

d. Office Equipment Usage

- Both the independent governments and the branches feel the need for filing and retrieval systems since one of their primary functions is to keep records. They all don't generate paper, but they all keep it and must have it available on very short notice.

EXHIBIT V-150

MUNICIPAL GOVERNMENT SECTOR - COMMUNICATIONS EQUIPMENT AND SERVICES (PERCENTAGE OF RESPONDENTS)

TYPE OF EQUIPMENT/SERVICE	INDEPENDENT ESTABLISHMENTS	BRANCHES OF LARGE GOVERNMENTS
COMMUNICATIONS EQUIPMENT		
KEYSET	79%	27%
PABX	21	73
INTERCONNECT	10	0
FACSIMILE	5	9
COMMUNICATIONS SERVICES		
WIDE-AREA TELEPHONE SERVICE (WATS)	5	23
TELEX/TWX	11	5
LEASED LINES	5	0
NON-TELEPHONE COMPANY SUPPLIED SERVICES	0	0

NUMBER OF RESPONDENTS =41

- Those entities that do generate paper have equipment to help them. Electronic typewriters are found in both types of organizations, and word processing equipment is used at the branch level (Exhibit V-151).

- All groups use copying equipment. Plain paper machines are dominant. Speed and output quality are the features most of them requested, but others rated fairly high:

  - Reduction.

  - Collating.

  - Copy from transparencies.

  - Ability to take large sizes such as maps.

  Also mentioned by several respondents was ease of use or, to use their term, idiot-proof.

- Many respondents felt that correcting typewriters would better suit their needs than word processing equipment, although several applications for word processing were mentioned. Some branches indicated that text editing equipment was available to them at the city departments and when the workload increased sufficiently, they would justify it.

EXHIBIT V-151

MUNICIPAL GOVERNMENT SECTOR -
OFFICE EQUIPMENT USED BY RESPONDENTS
(PERCENTAGE OF RESPONDENTS)

TYPE OF EQUIPMENT	INDEPENDENT GOVERNMENTS	BRANCHES OF LARGE GOVERNMENTS
ELECTRONIC TYPEWRITERS	5%	18%
STANDALONE WORD PROCESSORS	0	9
COATED PAPER COPIERS	5	5
PLAIN PAPER COPIERS	89	73
DUPLICATING EQUIPMENT	5	0
PRINT SHOP	0	0

NUMBER OF RESPONDENTS = 41

APPENDIX A: SOURCES USED

APPENDIX A: SOURCES USED

- Million Dollar Directory, V. I and 2, Dun and Bradstreet, 1979.
- Select Corporate Family Tree File, Dun and Bradstreet, 1978.
- Directory of Corporate Affiliations, National Register, 1979.
- Electronics Buyers Guide, McGraw-Hill, 1979.
- Education Directory-Public School Systems, National Center for Education Statistics, 1978.
- Compendium of Governments, U.S. Census Department, 1977.
- Census of Population, U.S. Census Department, 1970.
- Telephone Directories from various cities.
- County Industrial Directories.
- Service for Consultants, IBM.
- Holding Company Report, U.S. Independent Telephone Association, 1979.
- Common Carrier Statistics, U.S. Federal Communications Commission, 1976.

- County Business Patterns - U.S. Summary, U.S. Department of Census, 1976.

- Employment and Earnings, U.S. Department of Labor, January 1979.

- Cost of Doing Business, Dun and Bradstreet, 1978.

- Annual Statement Studies, Robert Morris Associates, 1978.

- Enterprise Statistics - General Report on Industrial Organization, U.S. Department of Census, 1972.

- Digest of Educational Statistics, National Center for Education Statistics, 1979.

- Independent Telephone Statistics, U.S. Independent Telephone Association, 1978.

- Insurance Facts, Insurance Information Institute, 1978.

- Life Insurance Fact Book, American Council of Life Insurance, 1978.

- Source Book of Health Insurance Data, Health Insurance Institute, 1978.

- Current Status of Group Medical Practice in the United States, American Medical Association, 1978.

- Standard Industrial Code Manual, U.S. Office of Management and Budget, 1972.

- National Trade and Professional Associations, Columbia Books, 1979.

- Quarterly Financial Report, First Quarter 1979, Federal Trade Commission.

- Statistical Abstract of the U.S., U.S. Department of Commerce, 1978.

APPENDIX B: DEFINITIONS

APPENDIX B: DEFINITIONS

- An enterprise is a business organization.

- An establishment is a physical location or a street address and can be:

  - An independent enterprise.

  - A branch of a major enterprise.

- An establishment can be a single-unit enterprise (SUE) or part of a multi-unit enterprise (MUE):

  - A single unit enterprise is an establishment having all operations consisting of activities not distinctly separable.

  - A multi-unit enterprise is a business organization consisting of more than one establishment or an establishment having distinctly separable activities.

- A branch is a physical location or street address and part of:

  - A large corporation.

  - A department of a large municipal government.

- An independent establishment is a SUE or MUE whose employment is 500 employees or less, and which is not a branch as defined above.

- Computer services are provided by vendors which perform data processing functions using vendor computers, or who assist users to perform such functions on their own computers; included are remote computing services (RCS), batch services, facilities management, professional services, and software products.

- Computer equipment includes any locally installed terminal, minicomputer, or mainframe. For the purpose of forecasting only, the term is defined as locally installed general purpose minicomputer or mainframe; i.e, local processing intelligence -- not including desk top calculators or accounting machines.

- Communications equipment includes keyset or PABX. Interconnect equipment is the attachment and use of non-telephone company equipment together with telephone company equipment or services.

- Communications services includes direct dial long distance (DDD), WATS, leased lines, tie lines, Telex/TWX, or other regulated transmission of voice or data.

- Office automation is defined as the use of word processing/text editing equipment, either single station or multi-station.

- Office equipment includes word processors, photocopiers, duplication machines and facsimile equipment.

- Industry specific EDP applications are defined as EDP applications which are important automatable functions of an industry or group of industries; e.g., interline payables (transportation) and bill of materials (discrete manufacturing).

APPENDIX C: INTERVIEW PROGRAM

EXHIBIT C-1

INTERVIEW PROGRAM FOR SMALL ESTABLISHMENT SERVICE

1979 ANNUAL REPORT

INDUSTRY SECTORS		ESTABLISHMENT SIZE			TOTAL
		1-19 EMPLOYEES	20-99 EMPLOYEES	100-499 EMPLOYEES	
DISCRETE MANUFACTURING	INDEPENDENT FIRMS	5	6	6	17
	BRANCHES OF LARGE CORPORATIONS	3	7	9	19
PROCESS MANUFACTURING	INDEPENDENT FIRMS	5	7	7	19
	BRANCHES OF LARGE CORPORATIONS	5	7	7	19
TRANSPORTATION	INDEPENDENT FIRMS	5	8	7	20
	BRANCHES OF LARGE CORPORATIONS	5	6	5	16
UTILITIES	INDEPENDENT FIRMS	6	5	6	17
	BRANCHES OF LARGE CORPORATIONS	4	9	9	22
WHOLESALE	INDEPENDENT FIRMS	7	9	9	25
	BRANCHES OF LARGE CORPORATIONS	6	9	10	25
RETAIL	INDEPENDENT FIRMS	8	8	6	22
	BRANCHES OF LARGE CORPORATIONS	5	6	6	17
BANKING	INDEPENDENT FIRMS	5	6	6	17
	BRANCHES OF LARGE CORPORATIONS	6	9	3	18
INSURANCE	INDEPENDENT FIRMS	7	9	8	24
	BRANCHES OF LARGE CORPORATIONS	7	10	10	27
HEALTH SERVICES	INDEPENDENT FIRMS	34	9	7	50
	- -	NOT APPLICABLE			
EDUCATION SERVICES	INDEPENDENT FIRMS	5	7	7	19
	- -	NOT APPLICABLE			
OTHER SERVICES	INDEPENDENT FIRMS	5	8	7	20
	BRANCHES OF LARGE CORPORATIONS	5	6	7	18
GOVERNMENT	MUNICIPAL GOVERNMENTS	4	8	7	19
	BRANCHES OF LARGE MUNICIPAL GOV'TS	7	8	7	22
SUBTOTAL	INDEPENDENT FIRMS	96	90	83	269
	BRANCHES OF LARGE CORPORATIONS	53	77	73	203
GRAND TOTAL		149	167	156	472

APPENDIX D: EXPENDITURE METHODOLOGY

APPENDIX D: EXPENDITURE METHODOLOGY

- The determination of the total expenditures in small establishments for information processing equipment and services was based upon the analysis of vendor revenues, and their apportionment into establishment sizes based upon demographics and equipment and services penetration. This was performed for the 1978 SES Annual Report and was described in the Methodology section of that report.

- The total growth of the data processing, communications, and office equipment industries between calendar years 1977 and 1978 was determined from the growth of the major vendor corporations in each industry area.

- The data determined for 1978's SES Annual Report for small establishment's expenditures/employee by each industry sector was updated to reflect the growth during 1978 in each segment of the information processing equipment and services area.

  - Computer equipment and services.

  - Communications equipment and services.

  - Office equipment.

- The new 1978 expenditures/employees figure was then multiplied by the number of employees in each industry based upon newer demographic statistics

in the small establishments to reach an expenditures total by major industry sector, by information processing segment, and a grand total for small establishments.

- The growth between 1977 and 1978 in each information processing segment was completed, and this rate was compounded for five years to arrive at the 1984 total.

APPENDIX E: QUESTIONNAIRE

CATALOG NO. SAN9

SMALL ESTABLISHMENT SURVEY

SECTION I: General Company Information

1. What is your company's primary business?

   ____

2. Is your location the headquarters of your company?

   Yes ( ) No ( )

   a) Is your establishment part of a larger company?

   Yes ( ) No ( )

   b) (If Yes) What is your parent company's name and primary business?

   ____

3. How many employees are there at your location? ______________

4. How many employees at your location are support staff (typists, secretaries, receptionist, keypunch operators, etc.)? ______________

SECTION II: Types of Improvements Needed For Information Handling

1. In your office, what are the most significant information handling problems and how do you think they may be resolved?

   ____

   ____

   ____

   ____

   a) Office equipment related - (typing, copying, dictating, and filing).

   ____

   ____

   b) Computer related: ______________________________

   ____

   ____

   c) Communications related - (the equipment you use, the services the telephone companies provide). ______________

   ____

   ____

2. What improvements do you expect to make in any of these areas in the next two years?

____

____

____

SECTION III: Types of Computer Equipment and Services You Use

1. Do you presently use computer equipment or services (check all that apply)?
   - ( ) We use a computer installed at this location. (Go to Question III 4.)
   - ( ) We use a computer located at another site within this company. (Go to Question III 13.)
   - ( ) We presently use computer services from a separate vendor. (Go to Question III 12.)
   - ( ) We do not use computers or computer services.

2. Why don't you use computers or computer services?

____

____

3. Do you plan to use computers in the future?

   Yes ( ) No ( ) (Go to Question III 19)

   a) If Yes, When? ________________________

   b) If Yes, Which one(s)? ________________________

   ____

   (Go to Question III 19.)

4. What type of computer equipment do you have installed at your location?

Equipment	Make/Model	No. in Use	Approx. Cost
Small Business Computer			
Terminals			
Accounting Machines			
Other			

5. Please describe the computer system(s) you use.

   a) Internal Memory Size (K):

   b) Language used (i.e., COBOL, BASIC, FORTRAN):

   c) Type and quantity of magnetic media (i.e., tape, disk):

   d) Type and quantity of output printers:

   e) Type and quantity of CRT terminals:

6. Does your computer communicate with any other computers or terminals in a location separate from yours?

   Yes ( ) No ( )

7. Why do you feel your computer should be installed at your location instead of using computer services?

8. Are you satisfied with your computer system?

   Yes ( ) No ( )

   a) Why?

   b) What changes would you like?

9. Do you plan to buy another computer or to change your present computer system in the next 5 years?

( ) No Change ( ) Add An Additional Computer ( ) Modify Our Present Computer

( ) Replace Present Computer With A New One ( ) Replace Present Computer With A Service

10. How do you prefer to acquire computer equipment?

Rent ( ) Lease ( ) Purchase ( )

11. What advice do you have for computer manufacturers?
(If computer services are also used, continue, otherwise skip to Question III 18.)

12. What computer services do you use?

Name of Service Co.	Type of Service Used	Applications

13. How do you send and receive data to and from the service?

( ) Interactively

( ) By remote batch terminals

( ) Mail

( ) Other

14. What is the best way for you to pay for computer services?
    - ( ) Pay by transaction
    - ( ) Pay by time
    - ( ) Pay a flat monthly rate
    - ( ) Other

15. How does this differ from the way you now pay for computer services?

16. Will you replace the use of computer services by a computer?

    Yes ( ) No ( )

    a) If Yes, What type of computer?

17. What advice do you have to computer service companies?

18. How do you normally obtain your computer programs?
    - ( ) We use the standard programs supplied by the manufacturer, no modifications.
    - ( ) Use programs supplied by manufacturers which were modified to fit our situation. Programs modified by: ____________________
    - ( ) They were written for us by a software house.
    - ( ) We prefer to write our own programs.

19. How important are the following factors in choosing computer equipment, services, or software?

FACTORS	Very Important	Somewhat Important	Slightly Important	Unimportant
Support in using the computer or writing the programs?				
Availability of additional software				
Delivery schedule				
Reputation of vendor				
Availability of additional equipment				
Hardware upgradability with software compatibility				
Other ____________ (specify)				

20. What applications do you use your computer/computer services for?

Applications	Now Manual	Now Automated Inhouse	Now Automated Service	Expect to Automate Within Five Years
Marketing & Sales				
Order Entry				
Sales Analysis				
Credit Authorization				
Other __________				
Finance-Accounting				
Payroll				
Billing				
Accts. Receivable				
Accts. Payable				
General Ledger				
Other __________				
Warehousing-Distribution				
Order Allocation				
Shipping				
Stock Replenishment				
Other __________				
Purchasing				
Inventory Control				
Receiving				
Other __________				
Manufacturing				
Bill of Materials				
Shop Floor Control				
Order Tracking				
Material Requirements/Planning				
Scheduling				
Job Costing				
Estimating				
Numerical Control				
Other __________				
R & D				
Analysis/Design				
Other __________				

CATALOG NO. SAN9

SECTION IV: Use of Communications

1. What type of communications equipment do you have installed at your location?

Type of Equipment	Make/Model	Number In Use	Number of Outside Lines
Keyset (one button for each outside line)			
PABX (central telephone answering)			
Facsimile			
Other ________________			

2. What type of communications services do you use at your location?

Type of Service	Supplier	Number In Use	Restrictions (Band, Hours/Mo., etc.)
WATS Lines			
TELEX/TWX			
Leased Lines			
Non-telephone Co. supplied services			
Other ________________			

3. Do you use communications equipment provided by:

( ) Bell Telephone

( ) Independent Telephone Companies

( ) Equipment suppliers who don't supply communications services.

a) Why?

4. What type of documents do you transmit via facsimile equipment?

5. Please describe any changes in your use of communications expected in the next two years.

6. What advice do you have for communications equipment and service suppliers?

SECTION V: Use of Office Equipment at Your Location.

1. What office equipment do you have installed at your location?

Typewriters and Word Processors	Make/Model	Number In Use	Average No. Of Pgs./Day
Typewriters			
Memory Typewriters			
Stand-Alone Word Processors			
Shared Logic Word Processors			

Copy and Duplication Equipment	Make/Model	Number In Use	Average No. Of Copies/Day
Coated Paper Copiers			
Plain Paper Copiers			
Duplicators			

2. How do you prefer to acquire office equipment?

Rent ( )   Lease ( )   Purchase ( )

Why?

3. Do you use word processors?

Yes ( )   No ( )

a) Why?

(If Yes, Go to Question V 5.)

4. If you are not a user of word processing equipment, do you plan to be a user in the next 5 years?

Yes ( )   No ( )

a) Why?

b) Under what circumstances would you use word processors? (Go to Question V 9.)

5. What are the two most important types of documents prepared on your word processor?

1. ______________________________

2. ______________________________

6. What are the four most important features for word processors (i.e., CRT, Memory Size, Automatic Hyphenation, and Document Retrieval)?

1. ______________________________

2. ______________________________

3. ______________________________

4. ______________________________

7. Do you plan to use your word processor to communicate (electronically) within the next 5 years?

( ) Do Now   ( ) Will Use Communications within five years

( ) Not Sure   ( ) No

8. What advice do you have for word processor manufacturers?

9. What features do you want on a copier?

( ) Reduction
( ) 2 sided copying
( ) Document Feed
( ) Other ______________________________
( ) Quality of output
( ) Speed (copies/minute)
( ) Collating

SECTION VI: Revenues and Expenditures at Your Location

(Please do not include any other locations of your company.)

1. Please indicate in which range your (your location) total revenue falls.

( ) Under \$300,000
( ) \$300,000 to \$1 Million
( ) \$1 Million to \$2.5 Million
( ) \$2.5 Million to \$10 Million
( ) \$10 Million to \$25 Million
( ) \$25 Million or more
( ) Not applicable, none

2. How do you budget your administrative expenses?

( ) The budget is based on a percentage of revenues.
( ) The budget is based on last years personnel and consumable costs plus an allowance for inflation.
( ) Budgets and expenditures are justified elsewhere.
( ) Treat new office equipment as non-budgeted capital investment and handle on an individual basis.
( ) Other ______________________________

3. Please indicate which range most accurately represents annual outside expenditures for computer, office, and communications equipment and services. Please do not include salary paid to your own employees to operate the equipment.

EQUIPMENT	Less than $1500	$1500-2999 ($125-250 per mo.)	$3000-8999 ($250-750 per mo.)	$9000-29,999 ($750-2500 per mo.)	$30,000-77,999 ($2500-6500 per mo.)	$78,000-179,999 ($6500-15,000 per mo.)	$180,000 + ($15,000 + per mo.)
Phone expenses paid to phone co. for equipment and services							
Other Communications equip. and services							
Computer equipment (computers/ terminals --exclude desk top units)							
Computer services (Time-sharing or Batch)							
Computer Software (Soft. prod./ services)							
Office equip. (copiers, type-writers, text editors)							

SES ANNUAL 1979

ERRATA SHEET

Page 228 - the first two paragraphs:

- The data in Exhibit V-92, applies to the entire insurance service industry sector. The estimated total revenue for this sector is $34 billion. Contributors to the total by establishment size are:

Establishment Size	Estimated Revenue ($ Billion)	Employees/Establishment
1-19 Employees	$21	3.2
20-99 Employees	$ 7	37.5
100-499 Employees	$ 4	197.2

- The number of employees is lower in the small category (3.2 versus 6-7) and higher in the larger category (197.2 versus 150-160) than in many other industries. The average revenue per employee is estimated at $95,000 and ranges from $85,000 to $150,000.